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

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Does the temporal perspective people adopt when reflecting on negative events influence how they respond emotionally to these events? If so, through what cognitive pathway(s) does it have this effect? Seven studies explored these questions. Studies 1a, 1b, and 2 tested our basic hypothesis that adopting a distant-future perspective on recent stressors (relative to a near-future or control perspective) reduces emotional distress, examining 4 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 4 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. They also explored the implications of impermanence focus for broader academic (Study 4) and psychological (Study 5) functioning. Finally, Study 6 manipulated impermanence focus to test whether it affected emotional reactions to stressors in a manner parallel to adopting a distant-future perspective. Together, these findings 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.

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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, & Wheatley, 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 temporal 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 both envisioning the past and imagining the future. This ability has received considerable attention within the construal level theory (CLT) literature, which examines how the degree of temporal distance between perceivers and the objects of their perception shapes the way they construe and respond to these objects. Although CLT research is concerned with the manner in which people construe both the past and the future, for the purpose of this article 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, 2003, 2010). However, little is known about whether and how the temporal perspective people adopt when reflecting on emotionally distressing events affects their 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, it is not clear that temporal distancing from negative events, that is putting them into a broader time perspective, has any affective benefits. This is not to say that psychologists have overlooked the potential role of temporal distancing in emotion regulation. On the contrary, several studies have investigated how this strategy, 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 reappraisal strategies, participants have been instructed to either sequentially apply several discrete perspective-broadening tactics toward a single negative experience, 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 (Rude, Mazzetti, Pal, & Stauble, 2011), or to select one or more of these perspective-broadening tactics to apply (Schartau et al., 2009). Similarly, participants in one cognitive reappraisal study were encouraged to use the reappraisal "things will improve with time," in conjunction with other reappraisal tactics 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 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.

Although these findings are encouraging, none of these studies assessed the stand-alone benefits of temporal distancing apart from these other reappraisal tactics. 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 article addressing the stand-alone effects 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.

These findings provide promising preliminary evidence that temporal distancing reduces emotional distress. However, 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 (a) examining how temporal distancing affects emotional responses to a variety of real-world stressors; (b) testing four potential cognitive mediators of the affective benefits of temporal distancing; and (c) 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 points in the future. In doing so, she may place this event in a relatively broad future time frame (e.g., imagining how she'll perceive it 10 years down the road) and/or a relatively narrow one (e.g., imagining 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, in part, to the ability to observe thoughts and feelings as transitory events in the mind (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 nonjudgmentally 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 also heightens people's awareness of the impermanence of their reactions to them. 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 overarching aspects (Liberman &

Trope, 2008; Trope & Liberman, 2003). People's reactions to stressful 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 heighten one's awareness of the impermanence and relative insignificance of these reactions, 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 1 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 (Liberman 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 with the near future (Heller et al., 2011).

The tendency to see the distant future as both more schematic and brighter than the near future 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. Because, 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 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). Although 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: (a) increased impermanence focus, (b) increased future idealization, (c) decreased focus on the concrete impact of stressors, and (d) 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. Although 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; Kross & Ayduk, 2008; 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 see 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 this topic, 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 3 and 4) and their psychological well-being (Study 5).

The Present Research

The present research has three main goals: (a) to determine whether temporal distancing from real-world stressors reduces emotional distress; (b) to elucidate the cognitive pathway(s) through which it does so; and (c) 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 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 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 versus 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 versus 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 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 two or three, 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 three 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^2s < 2.23, $ps > .20$.

Procedure.

Study 1a.

Preexperiment screening. Participants were screened for inclusion on the basis of having experienced a stressful event (self-defined) that arose within the prior 2 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-point 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, $SD = 2.10$.

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 1 week or 10 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 × 2 factorial design with the following four conditions: near-future feelings, near-future implications, distant-future feel-

ings, 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 (a) near-future feelings, (b) distant-future feelings, or (c) 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 completed 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: $M = 4.36$, $SD = 2.12$.

Postmanipulation 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, and 6), 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. Because 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, participants'

scores on these indices were 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 indicates greater negative and lesser positive affect. The items included in this measure were: worried, fearful, anxious, angry, sad, disappointed, guilty,[1] disgusted, confident, hopeful, eager, exhilarated, pleased, happy, and relieved; 1a: $\alpha = .88$, $M = 3.30$, $SD = 0.71$; 1b: $\alpha = .89$, $M = 2.92$, $SD = 0.73$.

Postmanipulation 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, during 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*).

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[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.

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. 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 (a) participants' estimates of the number of days that had elapsed since their stressors first arose on the screening survey, and (b) 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, and ran the analyses excluding all covariates. These additional covariates vary from study to study, and are described in detail in Section A of the supplemental materials. Inclusion versus 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. Because 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 below in Footnote 5. 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-subjects 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

Table 1

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

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, $F(2, 212) = 116.51$, $p < .001$, $\eta_p^2 = .52$. 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, $F(1, 212) = 44.36$, $p < .001$.[3]

Postmanipulation emotions. As predicted, the effect of condition on affect was significant, $F(2, 213) = 13.52$, $p < .001$, $\eta_p^2 = .11$. 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, $F(1, 213) = .05$, $p = .82$.

Postmanipulation cognitions[4]. Condition had a significant effect on all four of the proposed mediators of the temporal distancing to affect link: impermanence, $F(2, 213) = 20.43$, $p < .001$, $\eta_p^2 = .16$; future-idealization, $F(2, 213) = 29.81$, $p < .001$, $\eta_p^2 = .22$; concrete impact,[5] $F(2, 213) = 11.69$, $p < .001$, $\eta_p^2 = .10$; and avoidance, $F(2, 213) = 5.32$, $p = .006$, $\eta_p^2 = .05$. Consistent with predictions, the distant-future group focused *more* on their stressors' impermanence and their ideal future than the other two

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[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] When achieved temporal distance, as measured by the manipulation check, is used in place of condition as the main predictor in Studies 1a, 1b, 2, & 3, our results remain substantively similar. Details of these analyses can be obtained from the first author.

[4] For information on the associations between the four measured mediators in this and all subsequent studies, please see Section C of the Supplemental Materials.

[5] 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, $F(1, 134) = 3.61$, $p = .06$.

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.

groups (all $Fs > 8.70$, $ps < .005$). 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 $Fs > 5.25$, $ps < .05$).

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

Mediational analyses. To examine whether condition differences in any of the four proposed mediators accounted for the relationship between temporal distancing and postmanipulation 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). Because 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 versus near-future contrast separately from those for the distant-future versus 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, .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, −.02], mediated effect for future idealization = −.08, $SE = .03$, 95% CI [−.14, −.03], mediated effect for avoidance = −.04, $SE = .02$, 95% CI [−.09, −.02].[6]

We then examined the distant-future versus 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, −.01], mediated effect for future idealization = −.10, $SE = .04$, 95% CI [−.19, −.02], and mediated effect for avoidance = −.09, $SE = .05$, CI [−.21, −.01]. Again, concrete impact did not significantly mediate this effect, 95% CI [−.17, .01].[7]

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 toward cognitions the

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[6] In Study 1a alone, neither impermanence focus nor future idealization were significant independent mediators of the link between temporal distance and reduced distress, although the results for both were in a direction consistent with the findings from the combined sample. These null findings may have been due to this study, on its own, being underpowered. Please see Section B of the Supplemental Materials for additional details of the Study 1a and 1b specific mediational analyses.

[7] While the low reliability of the concrete impact measure in Study 1b may account in part for this null finding, it is unlikely to account for the larger pattern of null findings across the present research, as the reliability of the concrete impact measure tended to be acceptable to good (all other $\alpha s < .74$).

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 reduce 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, because 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, Finniss, & 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., premanipulation) 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 socially 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 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.

Postmanipulation emotions. As in our first two studies, we used Folkman and Lazarus's (1985) measure to assess stressor-related emotions, α = .90, *M* = 2.96, *SD* = 0.78.

Postmanipulation cognitions. Study 2 utilized the same items used in Study 1b to measure *impermanence* (α = .82, *M* = 4.81, *SD* = 1.58), *future idealization* (α = .79, *M* = 5.56, *SD* = 1.36), and *concrete impact* (α = .74, *M* = 4.59, *SD* = 1.52). Avoidance was also measured in a manner identical to the previous studies, (α = .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. 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. 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-point 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, α = .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-subjects 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 $Fs < 4$, $ps > .05$). Preliminary analyses also confirmed that the distant-future condition focused more on the distant future than the near-future condition, $F(1, 77) = 110.62$, $p < .001$, $\eta_p^2 = .59$. See Table 3 for descriptive statistics by condition.

Main analyses.

Postmanipulation emotions. As predicted, the distant-future group reported less negative affect, albeit marginally less, than the near-future group, $F(1, 77) = 3.25$, $p = .075$, $\eta_p^2 = .04$. This difference became stronger and statistically significant after controlling for socially desirable responding, $F(1, 76) = 4.29$, $p = .042$, $\eta_p^2 = .05$.

Postmanipulation cognitions. Consistent with the findings of Studies 1a and 1b, the distant-future group focused more on their stressors' impermanence, $F(1, 77) = 15.82$, $p < .001$, $\eta_p^2 = .17$, and on their ideal future, $F(1, 77) = 17.90$ $p < .001$, $\eta_p^2 = .19$, than the near-future group. Unexpectedly, there were no significant condition differences in participants' focus on the concrete impact of their stressor, $F(1, 77) = 2.27$, $p = .14$, $\eta_p^2 = .03$. Nor were there significant differences in avoidance, $F(1, 77) = 0.65$, $p = .42$, $\eta_p^2 = .01$. 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 [$-.50$, $-.11$]), whereas the

indirect effect of future idealization dropped to nonsignificance (mediated effect = $-.13$, $SE = .09$, 95% CI [$-.33$, $.02$]).

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. Although 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 emotional distress.

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 con-

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 $p = .075$.

servative control condition. This second 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 students (105 women; mean age = 21.34 years, $SD = 3.54$) 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, & Davidenko, 2009). One additional 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: (a) distant-future, (b) future-control, or (c) own-strategy control. Audio instructions for the distant-future and the future-control condition 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.

Premanipulation 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. 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, $SD = 3.83$.

Postmanipulation measures.

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

Postmanipulation 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%) 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. Because 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, $F(1, 89) = 32.55$, $p < .001$, $\eta_p^2 = .27$, or own-strategy control condition, $F(1, 89) = 47.77$, $p < .001$, $\eta_p^2 = .35$. See Table 4 for descriptive statistics by condition. Degrees of freedom vary slightly across the reported analyses due to missing values.

Main analyses.

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

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 revealed 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.

Postmanipulation cognitions. Similar to the prior studies, the distant-future condition reported greater impermanence focus than the future-control, $F(1, 90) = 10.05$, $p < .002$, $\eta_p^2 = .10$, or own-strategy control conditions, $F(1, 90) = 17.51$, $p < .001$, $\eta_p^2 = .16$. They also focused significantly more on their ideal future than the future-control, $F(1, 89) = 41.98$, $p < .001$, $\eta_p^2 = .32$, or
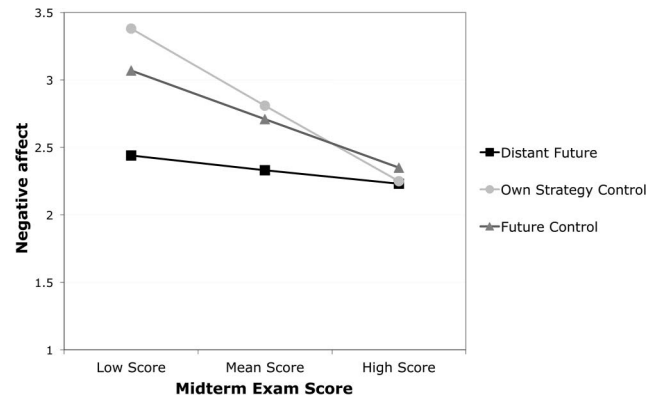
Table 4
Means (and Standard Deviations) of Outcomes by Condition for Study 3

	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.

own-strategy control conditions, $F(1, 89) = 41.47$, $p < .001$, $\eta_p^2 = .32$. 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 $Fs < 2.70$, $p > .10$).

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

Mediational and moderated mediational analyses. A central question is whether the Condition $\times$ Midterm interaction predicting affect was mediated by any of the postmanipulation 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 versus 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 $\times$ Midterm score interaction in the b-path (the indirect path from impermanence focus to affect) in addition to including the observed Condition $\times$ 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 SD

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 [$-.60$, $-.04$]. 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, .42]. This indirect effect was not significant at the mean level of midterm score, mediated effect = $-.05$, $SE = .06$, 95% CI [$-.21$, .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 × 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 [$-.46$, .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 versus 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 × Midterm score interaction predicting affect (all 95% CIs contain the value of zero).

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 versus future-control contrast. Although no clear mediators emerged for the distant-future versus 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 toward better understanding this mechanism. Although our first four studies suggested that experimentally induced impermanence focus reduced momentary distress, it remained 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 related 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 predicted 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, because 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 supplemental materials, Section 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 min or more than 90 min 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 min to take the entire survey when taking it as quickly as possible, and thus less than 15 min 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 min to finish. Thus, 90 min 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 35 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 1 min. 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.

Postreflection 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, α = .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, α = .83, M = 3.68, SD = 1.05.

Final exam performance. We asked participants for their postexperiment consent to obtain their final exam score in the class for which they completed the survey. Fifty (49.5% percent)[8] of participants consented, and among these participants the average final score was 86.97, SD = 13.59.

Elapsed time. 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 (a) midterm scores, (b) impermanence scores, and (c) 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.[9]

Main analyses.

Postreflection emotions. As expected, there was a main effect of midterm score on postreflection 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 × 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, $p < .001$.

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.

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[8] 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.

[9] 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 Section A of the Supplemental Materials for additional details.
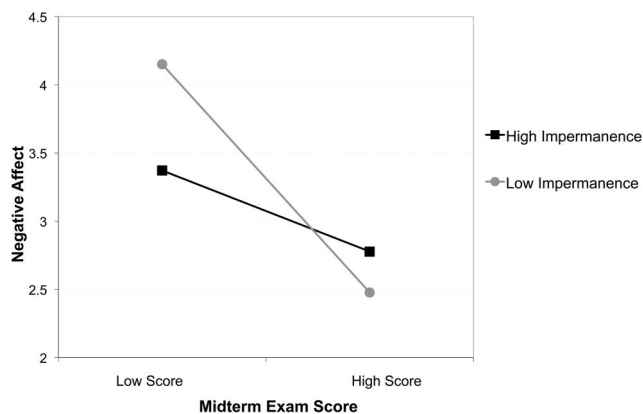
Figure 2. The relationship between impermanence focus and emotional reactions to midterm exam scores.

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 eight 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 6 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 a variety of measures of psychological well-being, described below.

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, α = .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 reexperiencing 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-point (*strongly disagree* to *strongly agree*) scale, α = .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-point scale (1 = *not at all* to 5 = *a great deal*) were averaged, α = .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 (nontime-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, α = .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, α = .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-point scale (1 = *strongly disagree* to 7 = *strongly agree*) were summed to yield a single index of life satisfaction, α = .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-point (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 the 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, α = .86.

Participants' scores on the three measures of their perceptions of the impact 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 on the participant, such that a higher score indicated a greater perceived impact, α = .77.

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

Results

Analytic strategy. Both zero-order and partial correlations (controlling for objective event severity and event age) 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.

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.
† = $p < .10$. * = $p < .05$.

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.

Although 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 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 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 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 (a) permanence, (b) impermanence, or (c) 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.

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

Postmanipulation 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. 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-subjects ANCOVAs with condition as the predictor and elapsed time as a covariate. In instances in which the overall effect of condition on the dependent variable was significant, contrast analyses were conducted to determine which conditions significantly differed.

Main analyses.

Postmanipulation emotions. As predicted, the effect of condition on affect was significant, $F(2, 115) = 6.97$, $p = .001$, $\eta_p^2 = .11$. 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.

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.

Postmanipulation cognitions. As expected, condition had a significant effect on perceptions of impermanence, $F(2, 115) = 5.80$, $p = .004$, $\eta_p^2 = .09$. 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, $F(2, 115) = 1.17$, $p = .31$, $\eta_p^2 = .02$; avoidance, $F(2, 115) = .81$, $p = .45$, $\eta_p^2 = .01$; or the temporal perspective participants adopted, $F(2, 115) = 2.03$, $p = .14$, $\eta_p^2 = .03$. Condition also did not significantly impact future idealization, $F(2, 115) = 2.54$, $p = .08$, $\eta_p^2 = .04$, although this effect was trending toward 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 Fs < 2.90 ps > .09).

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 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.

General Discussion

The present research had three main aims. The first was to test whether temporal distancing from real-world stressors reduces distress. The results of our first four studies provided converging evidence that adopting a distant-future perspective on a variety of stressful events lowers distress more effectively than adopting a near-future perspective (Studies 1a, 1b, and 2) 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 broader temporal 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, and 3 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 (rs ranged from .26 to .52). Moreover, while the temporal distance manipulation reliably affected impermanence focus across our first four 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 and final goal of this article was to explore whether temporal distancing, and its associated cognitive processes, have any implications for broader functioning. Because there was little prior work on this topic, we took an exploratory 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.

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 more minor 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, it appears to lower emotional reactivity to both major and minor stressors. Across our experiments, pre-manipulation participant-rated stressor severity failed to moderate the relationship between temporal distancing and reduced distress. Many participants wrote about stressors that they considered severe (e.g., major financial difficulties, hospitalization of close family members, drug addiction problems, etc.), so it

seems unlikely that the lack of moderation is due to restriction of range. Although it is important not to overinterpret null moderation, the current pattern of findings is consistent with the possibility that temporal distancing is an effective strategy for reducing the distress of people experiencing both relatively serious and relatively trivial stressors.

Second, this strategy 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 this group ranged from 5.30 to 6.35 on a scale from 1 = *focused exclusively on the near future* to 7 = *focused exclusively on the distant future*. These results suggest that temporal distancing may serve as a stress management strategy that is both broadly 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 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, John, Srivastava, & Gross, 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 toward 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.

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 such direct comparisons would advance our understanding both of perspective-broadening reappraisal tactics and of cognitive reappraisal more broadly.

In the future, it will also be essential to examine boundary conditions of the emotion-regulatory benefits of temporal distancing. One such potential condition is that temporal distancing from stressors may only be helpful to the extent that they have a clear endpoint. Some stressors (e.g., problems with college roommates) have better defined endpoints than others (e.g., chronic illness). Adopting a temporally distant perspective on stressors that are chronic in nature may amplify distress by highlighting the possibility that one will continue to be burdened by them for years to come. Likewise, it is important to test whether temporal distancing reduces the distress of psychologically vulnerable individuals, such as those with anxiety or mood disorders, for whom stress regulation is particularly important (e.g., Ellicott, Hammen, Gitlin, Brown, & Jamison, 1990; Kessler, 1997). It is possible that temporal distancing from stressors may not effectively reduce the distress of people with anxiety and mood disorders, especially those prone to chronic and uncontrollable worry about the future, because thinking about where a stressful event fits into the bigger picture of their lives may simply trigger automatic patterns of worry or rumination. However, prior research suggests that other types of psychological distancing (i.e., self-distancing) 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). Given this research, it may be valuable to explore whether temporal distancing has similar benefits. If future research demonstrates that temporal distancing techniques work effectively for psychologically vulnerable populations, they could easily be incorporated into existing training interventions and therapy protocols.

A final interesting extension of the present research would be to examine how temporal distancing affects reactions to positive 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 events. These findings highlight the importance of examining the effects of temporal distancing within clinical samples as well as exploring whether stable individual differences in this tendency are linked to broader well-being.

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