

# Repenting Hyperopia: An Analysis of Self-Control Regrets

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This article proposes that supposedly farsighted (hyperopic) choices of virtue over vice evoke increasing regret over time. We demonstrate that greater temporal separation between a choice and its assessment enhances the regret (or anticipated regret) of virtuous decisions (e.g., choosing work over pleasure). We argue that this finding reflects the differential impact of time on the affective determinants of self-control regrets. In particular, we show that greater temporal perspective attenuates emotions of indulgence guilt but accentuates wistful feelings of missing out on the pleasures of life. We examine alternative explanations, including action versus inaction regrets and levels of construal.

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There is no memory with less satisfaction than the memory of some temptation we resisted. (James Branch Cabell [1879–1958])

Our religions, mythologies, and fables admonish us to overcome temptation, exercise self-discipline, and heed the future (see Adam and Eve, Odysseus, and “The Ant and the Grasshopper”). Consumer researchers, too, offer helpful strategies for increasing willpower and avoiding indulgence (Hoch and Loewenstein 1991; Mukhopadhyay and Johar 2005; Wertenbroch 1998). The seemingly universal espousal of prudence and farsightedness as noble goals is reflected in the vast literature on self-control. This body of research is premised on the notion that people are shortsighted (myopic) and easily tempted by hedonic “sins,” such as overbuying (oniomania), splurging on tasty but unhealthy food, and indulging in luxuries (Baumeister 2002; Herrstein and Prelec 1992; O’Guinn and Faber 1989). Importantly, this literature suggests that people not only yield to temptation they had originally planned to resist but also subsequently reverse their preference and regret their myopic behavior (Elster 1979; Schelling 1992).

While yielding to temptation can certainly be harmful,

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this article argues that overcontrol and excessive farsightedness (hyperopia) can also have negative long-term consequences. In particular, we propose that, with the passage of time, choices of virtue over vice (e.g., work over pleasure) evoke increasing regret. Accordingly, we demonstrate that, in both retrospective and prospective evaluations of past and current self-control dilemmas, respectively, increasing the temporal separation between the actual decision and its assessment enhances the regret (or anticipatory regret) of righteous choices. Building on research on self-control and on affect (Kahneman 1995; Kivetz and Simonson 2002b; Loewenstein 1996; Metcalfe and Mischel 1999; Schwarz and Clore 1996), we argue that greater temporal perspective allows consumers to escape the influence of indulgence guilt and causes them to experience a wistful feeling of missing out on the pleasures of life. Consistent with this proposition, we show that the intensifying regret about past hyperopia is driven by the decay of indulgence guilt and the increase of feelings of missing out. A key test provides converging evidence for the underlying role of guilt and missing out and demonstrates that priming cognitive, rather than affective, processing attenuates the temporal variation in self-control regrets. In addition to testing our conceptualization, the reported experiments examine alternative explanations involving such factors as errors of commission versus omission (actions vs. inactions) and levels of construal. In the final section of this article, we report additional tests of alternative explanations.

## SELF-CONTROL AND REGRET

We begin our conceptual analysis with a brief review of the classic self-control problem (i.e., myopia). We then survey evidence that consumers also suffer from an opposite

form of self-control problem, namely, hyperopia, or the difficulty of deviating from “doing the right thing” and acting responsibly. We then proceed with an analysis of the affective factors that underlie our proposition that changes in temporal perspective can lead consumers to reverse their self-control regrets.

### The Myopia Self-Control Problem

Research extending over 4 decades in psychology and economics, and more recently in marketing, has examined myopia (shortsightedness) and its antidotes (Herrnstein and Prelec 1992; Hoch and Loewenstein 1991; Mischel 1974; Mukhopadhyay and Johar 2005; Schelling 1992; Wertenbroch 1998). The tendency to succumb to impulse, seek immediate pleasure, and avoid discomfort at the expense of long-term interests is often attributed to time-inconsistent preferences, whereby consumers overweigh the present relative to the future (Ainslie 1975). Such present-biased preferences are assumed to obstruct consumers’ self-regulation, with significant detrimental consequences for both individuals and society (Baumeister, Heatherton, and Tice 1994). That is, a central tenet of the myopia account of self-control is that indulging and yielding to short-term temptations will lead to regret, whereby, in retrospect, consumers wish they had behaved more responsibly. As Baumeister (2002, 675) states, “For consumer behavior, self-control represents the capacity to resist temptation, especially those relevant to impulsive purchases and other expenditures that are *likely to be regretted later on*. . . . In the long-run, such purchases may lead to higher profits for manufacturers and retailers, but *more unsatisfied and unhappy consumers*” (italics added).

There is no doubt that myopic self-control problems exist and can evoke remorse, especially when they have severe long-term consequences. Lasting regret of myopia is particularly likely for self-control lapses: situations in which consumers could clearly identify an optimal decision (i.e., choosing the farsighted option) but nevertheless transgress due to various factors that dominate the here and now (e.g., visceral and affective influences, ego depletion). For instance, a single irresponsible act (e.g., an angry outburst) could lead to a negative outcome (e.g., losing the presidential primaries) that generates lasting regret. Similarly, self-control lapses that involve repeated consumption of addictive vices (e.g., alcohol) typically lead to long-term regret.

However, the present research investigates what could be labeled as *self-control dilemmas*: everyday situations in which the optimal choice is not transparent. In such self-control dilemmas, consumers have to choose between options with immediate benefits but delayed costs (leisure goods or relative vices) and options with immediate costs but delayed benefits (investment goods or relative virtues; Wertenbroch [1998]). The dilemma is due to the fact that the option representing indulgence or vice is inherently valuable and is not dominated by the more virtuous option. We propose that, in such everyday self-control dilemmas, minimizing long-term regret calls for choosing indulgence. That is, while yielding to temptation generates regret in the

short-run, moving to a broader temporal perspective differentially affects the relevant affective antecedents, consequently enhancing the regret of righteous choices. To understand the basis for this proposition, we consider next an alternative approach to the myopia framework.

### The Hyperopia Self-Control Problem

In a recent article, Kivetz and Simonson (2002b) argued that consumers often suffer from an opposite form of self-control problems, involving excessive farsightedness (hyperopia) and future-biased preferences. Such hyperopic consumers deprive themselves of indulgence and instead overly focus on acquiring and consuming utilitarian necessities, acting responsibly, and doing “the right thing.” Kivetz and Simonson showed that consumers who perceive themselves as suffering from hyperopia employ precommitments to indulgence. For example, consumers choose hedonic luxury rewards over cash of equal or greater value and explain such choices as intended to guarantee that the award is not spent on necessities. Consistent with the notion that hyperopic self-control problems involve time-inconsistent preferences, consumers precommitted to indulgence when the consequences of their decisions were delayed but reversed their decision when the consequences were imminent.

Hyperopia and the related need to precommit to indulgence arise due to the inherent disadvantage of luxuries and indulgences relative to necessities and other utilitarian options (Berry 1994; Prelec and Loewenstein 1998; Weber 1998). For both pragmatic and moral reasons, it is much easier to justify to the self and to others the choice of utilitarian necessities and virtue rather than a choice of indulgence and vice (Kivetz and Simonson 2002b). Further, indulging is often construed as wasteful, irresponsible, and even immoral, and consequently it evokes guilt (Giner-Sorolla 2001; Kivetz and Simonson 2002a, 2006; Prelec and Herrnstein 1991). Such guilt may drive consumers to underconsume precisely those products and experiences that they enjoy the most.

Building on these findings, we posit that temporally proximal choices of vice over virtue (in the immediate past or future) evoke an intense emotion of guilt. However, as discussed next, we propose that temporal distance from decisions attenuates guilt and gives rise to a wistful feeling of missing out on pleasure, consequently leading to reversals in self-control regrets.

### The Affective Antecedents of Self-Control Regrets

We argue that consumers can regret either myopia or hyperopia, because particular resolutions of self-control dilemmas give rise to different feelings downstream. On the one hand, a “myopic” choice of indulgence (e.g., going to a party instead of working) can induce an intense emotion of guilt. On the other hand, a virtuous and supposedly farsighted choice (e.g., working rather than partying) can bring about wistful feelings of missing out. Critically, building on prior research, we propose that the intensity of such self-control

feelings varies with consumers' (temporal) perspective and accordingly influences the type of regret experienced.

Scholars of affect have distinguished between emotions and other affective feelings (Schwarz and Clore 1996). Whereas emotions are characterized by high intensity, a sharp rise time, and limited duration, other affective feelings and moods have low intensity, arise gradually, and may last for extended periods. A related distinction has been made by researchers of self-control and intertemporal choice, who argue that "hot" emotional dimensions are discounted more steeply over time than are more "cool" cognitive dimensions (Loewenstein 1996; Metcalfe and Mischel 1999). Further, Kahneman (1995) has drawn a contrast between "hot" and "wistful" feelings of regret. According to Kahneman, hot emotions such as guilt and shame are more intense and short lived than wistful, contemplative feelings such as nostalgia. That is, hot emotions are predicted to dominate in short-term perspectives (e.g., regrets of the recent past), whereas wistful feelings are expected to dominate in long-term perspectives (e.g., regrets of the distant past). Gilovich, Medvec, and Kahneman (1998) found empirical support for these predictions.

We predict that the guilt of choosing vice will decay over time more rapidly than the wistful feeling of missing out on pleasure due to choosing virtue. Whereas guilt is an acute, hot emotion, missing out is a colder, contemplative feeling. Therefore, indulgence guilt is expected to predominate in the temporal proximity of the relevant self-control choice but to subsequently diminish over time. In contrast, as Kahneman argues, long-term perspectives give rise to wistful feelings whose realization grows over time. Further, a broader perspective invites a more global assessment of life and past choices. The desired experiences and memories that are evoked by a global assessment of life are more likely to involve pleasure than necessity, a bias that favors feelings of missing out over emotions of indulgence guilt. Thus, wistful feelings of missing out on the pleasures of life are predicted to increase over time, thereby predominating when a righteous choice is evaluated from a broad (long-term) temporal perspective.

The asymmetric effect of temporal perspective on the intensity of indulgence guilt and missing out is expected to influence the type of regret evoked by different self-control behaviors. In particular, the notion that greater temporal perspective attenuates indulgence guilt but accentuates wistful feelings of missing out suggests that, while in the short-run hyperopia will appear preferable, over time it will generate increasing regret. Further, the proposed temporal pattern of self-control affect suggests that regrets of many indulgences will be short lived. In other words, consumers are predicted to reverse their self-control regrets, such that, when evaluating near-past decisions, they would regret choices of indulgence rather than virtue and, when evaluating distant past decisions, they would regret righteous decisions more than supposed myopic ones.

The discussion leads to the following hypotheses:

**H1:** Self-control regrets will reverse as a function of temporal perspective: greater temporal separation

between a decision and its subsequent evaluation will increase regrets of hyperopia and decrease regrets of indulgence.

**H2:** Temporal variation in the intensity of indulgence guilt relative to missing out will mediate the reversals in self-control regrets, with greater temporal perspective eroding guilt but enhancing wistful feelings of missing out.

## THE IMPACT OF PERSPECTIVE ON SELF-CONTROL AFFECT AND REGRET

A series of three studies was conducted to test our conceptualization and hypotheses. Study 1 examines consumers' regrets regarding (real) past trade-offs between work and pleasure. Study 2 investigates the real regrets of college students regarding their behavior during a (recent vs. distant) past winter break; this study also contrasts the regrets of current students with those of alumni. Study 3 provides a particularly important test of our conceptualization by offering converging evidence for the underlying role of guilt and missing out and showing that priming cognitive rather than affective processing attenuates the reversal of self-control regrets.

Studies 1 and 3 examine self-control dilemmas between two alternative courses of action, one representing an indulgence or relative vice (e.g., eating a chocolate cake or partying) and the other representing a more hyperopic action or relative virtue (e.g., eating a fruit salad or working). In contrast, study 2 explores the regret associated with different self-control in actions, such as failing to spend more money on items one enjoys and failing to save more money during a college winter break. The various self-control dilemmas were selected based on a pilot study with 33 respondents. These respondents were presented with a series of self-control dilemmas and were asked to indicate which alternative they thought would be chosen by (a) a person who is most concerned about how s/he feels in the present, (b) an impulsive person who does not consider the negative consequences of actions in the long run, (c) a person who considers long-term goals, and (d) a person who is most concerned about the future. In all cases, the alternatives designated as indulgence/vice or as farsighted/virtue were perceived as such by respondents. Specifically, a significant majority of respondents perceived relative vices as offering immediate benefits but negative long-term consequences and relative virtues as offering long-term benefits. In the general discussion, we report additional tests of the self-control dilemmas that rule out alternative explanations based on errors of omission versus commission and levels of construal.

### Study 1: Regrets of Work versus Pleasure

*Method.* Participants were 31 travelers who were waiting for flights at domestic terminals in a major airport and 32 park visitors in a major East Coast city. No noticeable differences in the responses of the samples emerged; hence,

we report the pooled results. Participants were randomly assigned to one of four conditions in a 2 (temporal perspective: near vs. distant past)  $\times$  2 (self-control action: work vs. pleasure) between-subjects design. In all conditions, participants were asked to recall a situation that occurred either last week or at least 5 years ago (near vs. distant past, respectively) and in which they had to choose between work and pleasure. To manipulate participants' resolution of their past self-control dilemma, they were told to recall such a situation in which they eventually chose either the work or the pleasure (manipulated between subjects). In all conditions, participants were asked to describe in writing both the work and the pleasure alternatives and their chosen course of action.

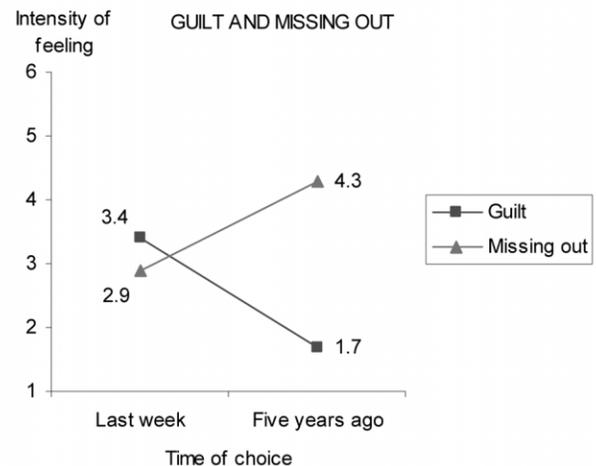
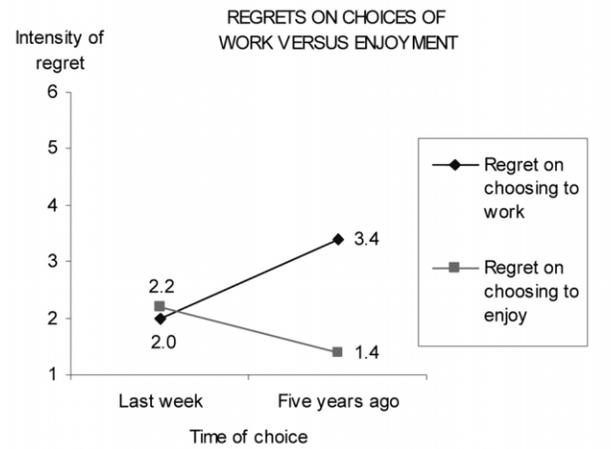
Participants rated the extent to which they currently regretted their past choice on a seven-point scale ranging from "No regret at all" (1) to "A lot of regret" (7). Next, participants in the "decision to work" condition rated the extent to which their past choice evoked current feelings of missing out; these ratings were made on a seven-point scale ranging from "Not at all" (1) to "Very much" (7). Conversely, participants in the "decision to indulge" condition rated the extent to which their past choice evoked current feelings of guilt (using a similar seven-point scale).

**Results.** Consistent with hypothesis 1, the results indicate that the interaction between temporal perspective and self-control action in determining the level of regret was significant and in the predicted direction ( $F(1, 59) = 7.1$ ,  $p = .01$ ). As shown in figure 1 (upper panel), for participants who chose work over pleasure, the experienced regret was greater for those who considered a distant-past rather than a near-past self-control dilemma (3.4 vs. 2.0,  $t = 2.2$ ,  $p < .05$ ). Further, as expected, for participants who chose pleasure over work, the experienced regret was lower for those who considered a distant-past rather than a near-past decision (1.4 vs. 2.2,  $t = 1.7$ ,  $p = .05$ ). Figure 1 (upper panel) also shows that, when near-past decisions were evaluated, regrets about choosing indulgence were directionally higher than regrets about choosing work. In contrast, when distant-past decisions were evaluated, regrets about choosing work were significantly stronger than regrets about choosing indulgence ( $p < .005$ ). It is noteworthy that the predicted interaction between self-control action and temporal perspective is inconsistent with the alternative explanation based on action versus inaction regrets (Gilovich and Medvec 1995). In particular, this rival account predicts that both regret for choosing work and regret for choosing pleasure should decrease over time because both relate to actions (errors of commission).

As shown in figure 1 (lower panel), the ratings of guilt and missing out supported the underlying role of self-control affect. The interaction between temporal perspective and self-control action in determining the intensity of the relevant affect was significant and in the direction predicted by hypothesis 2 ( $F(1, 59) = 9.9$ ,  $p < .005$ ). Specifically, participants who chose pleasure over work experienced significantly weaker guilt when their indulgence occurred in the

FIGURE 1

## REGRETS OF WORK VERSUS PLEASURE (STUDY 1 RESULTS)



distant past rather than the near past (1.7 to 3.4,  $t = 2.6$ ,  $p < .01$ ). In contrast, participants who chose work over pleasure experienced significantly stronger feelings of missing out when their righteousness took place in the distant past rather than the near past (4.3 to 2.9,  $t = 2.0$ ,  $p < .05$ ). We conducted a separate mediation analysis for each condition of self-control decision (i.e., work vs. pleasure). In the "decision to indulge" condition, emotions of guilt significantly mediated the effect of the independent variable (temporal perspective) on the dependent variable (regret), as indicated by the Sobel (1982) test ( $z = 1.9$ ,  $p < .05$ ). Similarly, in the "decision to work" condition, feelings of missing out significantly mediated the effect of temporal perspective on regret ( $z = 1.8$ ,  $p < .05$ ). Finally, consistent with our conceptualization, figure 1 (lower panel) shows that, when near-

past decisions were evaluated, emotions of indulgence guilt were directionally stronger than feelings of missing out. In contrast, when distant-past decisions were evaluated, emotions of guilt were significantly weaker than feelings of missing out ( $p < .001$ ).

## Study 2: Winter Break Regrets

The present study was designed to generalize the findings by investigating real self-control regrets using a different sample, methodology, and consumption context in which indulging represents the norm. Specifically, we examine the regrets experienced by university students about a relatively recent-past or distant-past winter break. We also explore the regrets of alumni from the same university reflecting on their winter break from 40 years ago. Contrary to study 1, which examined regrets about alternative actions, this study investigates regrets of inactions.

**Method.** Participants were 69 current students at a large East Coast university. Given the nature of the study, we sampled only students who had lived in the United States for the majority of their lives and who were at least in their second year of studies at the university. The students were recruited 1 wk. after winter break and were randomly assigned to one of two temporal perspectives: considering their winter break from either the previous week or the previous year.

Participants were first instructed to take a few minutes to carefully reflect on how they spent their winter break last week or last year (i.e., near vs. distant temporal perspective, respectively; manipulated between subjects). Participants were then provided with a list of six regret statements regarding their inactions during winter break. Three of these statements suggested that the participant should have indulged more during winter break (“I should have enjoyed myself more,” “I should have traveled more,” and “I should have spent more money on things I enjoy”), whereas the other three statements suggested that the participant should have behaved more virtuously during winter break (“I should have studied more,” “I should have worked more,” and “I should have saved more money”). Statements regarding both types of inactions were mixed together. Participants were asked to rate their agreement with each statement on a five-point scale ranging from “Strongly disagree” (1) to “Strongly agree” (5). Next, they were asked to rate what they regretted more when thinking about how they spent their winter break: “Not having enough self-control” or “Having too much self-control.” The former was defined as “not exercising enough restraint over my own impulses, desires, or actions; indulging or pampering myself too much,” whereas the latter was defined as “exercising too much restraint over my own impulses, desires, or actions; not indulging or pampering myself enough.” Ratings were made on a seven-point scale, with higher (lower) ratings representing greater regret on having too much (not having enough) self-control during the winter break.

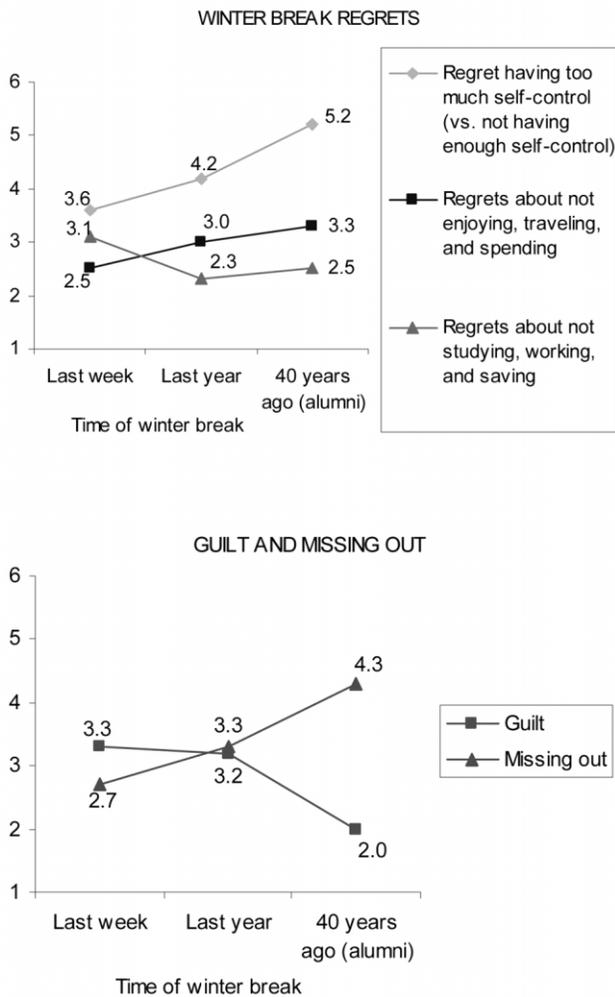
After participants indicated their regrets, they were asked

to rate how much feelings of missing out they experienced at the present as they reflected on the enjoyable things they could have done but did not do on the winter break. These missing out ratings were made on a seven-point scale ranging from “Not at all” (1) to “Very much” (7). Respondents were then asked to rate (using a similar seven-point scale) how much feelings of guilt they experienced at the present as they reflected on the things they do not enjoy doing but should have done on the winter break.

**Results.** Participants agreed more with each of the three regret statements suggesting that they should have indulged more when they recalled the distant-past rather than the near-past winter break (this effect was statistically significant for the “travel more” statement and marginally significant for the “spend more” statement). Correspondingly, participants agreed less with each of the three regret statements suggesting that they should have behaved more virtuously when they recalled the distant-past rather than the near-past winter break (this effect was statistically significant for all three statements). A factor analysis of the six regret statements yielded two distinct factors, one representing regrets about not indulging more and the other representing regrets about not behaving more virtuously. Accordingly, for each participant, we created a measure of “hedonic inaction regrets” (e.g., “should have enjoyed more”) and a measure of “virtuous inaction regrets” (e.g., “should have worked more”) by averaging the three ratings corresponding to each factor. We conducted a repeated measures analysis of variance, with the within-subjects factor consisting of the type of inaction regret (hedonic vs. virtuous) and the between-subjects factor consisting of the manipulated temporal perspective (winter break from last week vs. last year). Consistent with hypothesis 1, the interaction between the type of inaction regret and temporal perspective was statistically significant ( $F(1, 67) = 17.3, p < .001$ ); as expected, neither the main effect of regret type nor that of temporal perspective approached statistical significance. As shown in figure 2 (upper panel), greater temporal perspective enhanced “hedonic inaction regrets” (2.5 vs. 3.0,  $t = 2.0, p < .05$ ) but decreased “virtuous inaction regrets” (3.1 vs. 2.3,  $t = 3.0, p < .005$ ). Figure 2 (upper panel) also shows that participants who evaluated their winter break from last week had weaker hedonic than virtuous inaction regrets (2.5 vs. 3.1, pairwise  $t = 2.7, p < .01$ ). In contrast, evaluations of winter break from last year revealed stronger hedonic than virtuous inaction regrets (3.0 vs. 2.3, pairwise  $t = 3.2, p < .005$ ). The significant interaction between regret type and temporal perspective is consistent with our conceptualization, whereas it is inconsistent with the errors of omission/commission alternative explanation. In particular, the latter predicts that both “hedonic” and “virtuous” regrets should increase over time, because both relate to inactions (errors of omission).

The results pertaining to the “self-control regret” scale provided additional support for hypothesis 1 (see fig. 2, upper panel). The mean rating on this scale was significantly higher for students who reflected on a distant-past rather than near-past winter break (4.2 vs. 3.6,  $t = 2.0, p < .05$ ).

**FIGURE 2**  
WINTER BREAK REGRETS (STUDY 2 RESULTS)



That is, students regretted having “too much self-control” (compared to “not having enough self-control”) relatively more when they thought about their winter break from last year rather than that of last week.

Consistent with hypothesis 2, the effects of temporal perspective on “hedonic inaction regrets,” “virtuous inaction regrets,” and “self-control regret” were all partially mediated via the measure of self-control affect (all three Sobel tests were marginally significant at the .1 level). The affect measure was created by subtracting participants’ missing out ratings from their guilt ratings (both shown in fig. 2, lower panel). The (partial) mediation reflects the finding that higher missing out relative to guilt increases regrets of hyperopia relative to myopia (and vice versa).

*Regrets of Alumni.* We also asked 24 alumni (recruited at a reunion event) who graduated 40 years ago to reflect on their college winter breaks. Except for the timing of the

past winter break, the alumni questionnaire was identical to the main study’s questionnaire. As shown in figure 2 (upper panel), alumni reflecting on their winter breaks from 40 years ago felt greater regret about not indulging and lesser regret about not behaving virtuously than did students reflecting on their winter break from last week (both  $p$ ’s < .05). The alumni also felt greater regret about not indulging than did students reflecting on their winter break from last year ( $p$  < .1), but there was no significant difference between these two groups in terms of their regrets about not behaving virtuously. Further, ratings on the self-control regret scale indicated that the alumni had more regrets about having “too much self-control” (compared to “not having enough self-control”) than did either of the current student groups (both  $p$ ’s < .005). Finally, the alumni had weaker emotions of indulgence guilt and stronger feelings of missing out than did either of the current student groups (all  $p$ ’s < .05; see fig. 2, lower panel). In fact, while students who reflected on their winter break from last week felt stronger guilt than missing out ( $p$  < .05), the alumni felt weaker guilt than missing out ( $p$  < .001). These findings are consistent with hypotheses 1 and 2 and generalize the effect of broader temporal perspective to the natural passage of time (i.e., aging).

### Study 3: Priming Affective versus Cognitive Processing of Self-Control Regrets

Using two different methodologies, studies 1 and 2 investigated the temporal pattern of self-control regrets and their affective antecedents. The current study examines yet another self-control dilemma (i.e., choosing between a tempting cake and a healthier fruit salad), a decision that has been commonly investigated in self-control research (Shiv and Fedorikhin 1999). More importantly, the study explores the proposed underlying affective mechanism and contrasts it with alternative explanations, such as errors of commission versus omission and levels of construal.

We proposed that the psychological process generating reversals in self-control regret is affective, involving a temporal variation in the intensity of hot emotions of guilt versus wistful feelings of missing out. This conceptualization implies that priming a cognitive processing of self-control dilemmas would attenuate the observed reversals in regret. Conversely, priming an affective processing should yield reversals in regret that are similar to those obtained under natural, spontaneous processing, which are posited to be affective by default. Thus:

**H3:** Compared to spontaneous or affective processing, a cognitive appraisal of a self-control dilemma will attenuate the reversal between regrets of hyperopia and indulgence.

In addition to investigating hypothesis 3, this study generalizes the earlier tests of hypotheses 1 and 2 in several noteworthy ways. First, we employ a subtler methodology to examine the nature and temporal pattern of the affective antecedents of self-control regrets (hypothesis 2). In partic-

ular, we analyze open-ended protocols that, unlike the close-ended ratings, do not explicitly mention guilt and missing out. Second, the earlier studies measured guilt and missing out after the regret judgment, whereas the current study probes self-control affect and cognition prior to the regret judgment. Finally, studies 1 and 2 examined retrospective evaluations of prior self-control decisions; here we investigate whether a broader temporal perspective has similar impact when consumers anticipate their future regret about a current, impending choice. Exploring anticipated regret is important not only theoretically and substantively (see Simonson 1992) but also methodologically, as it rules out the alternative explanation that reversals in regret arise from asymmetries in recalled information across different temporal perspectives. In the current study, all participants share the same information, regardless of whether they anticipate near-future or future-distant regret.

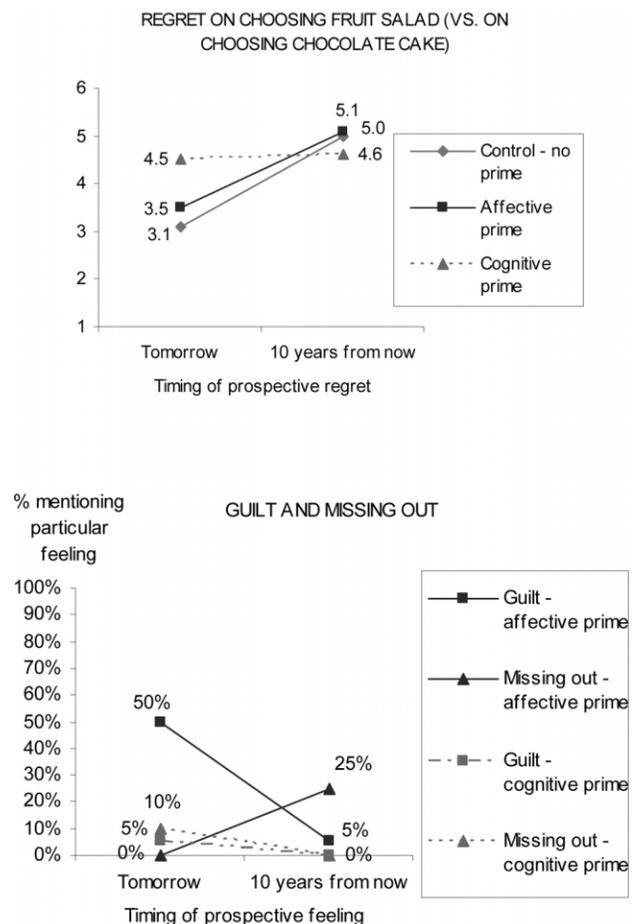
**Method.** Participants were 132 students at a large East Coast university. They were randomly assigned to one of six conditions in a 2 (temporal perspective: near vs. distant) × 3 (processing prime: affective, cognitive, or no-prime) between-subjects design. In all conditions, a self-control dilemma was first described in which participants had to choose between two desserts: a delicious, three-layer chocolate cake (i.e., a relative vice) and a low-calorie, healthy fruit salad (i.e., a relative virtue). In the affective and cognitive prime conditions, participants were asked to imagine that they had just chosen the chocolate cake. They were then instructed to indicate what kind of “feelings and emotions” (or “considerations and thoughts”; manipulated between-subjects) the memory of this choice would induce either 1 day or 10 yr. into the future (i.e., near vs. distant temporal perspective, respectively). Participants were told to describe the “specific emotions that [they] may feel” (or the “specific considerations that [they] may think about”) at the indicated time. They had several lines on which to write their feelings (or thoughts). These lines were preceded with the words “I would feel . . .” or “I would consider . . .,” depending on the prime condition. Following this task, the participants in the affective and cognitive prime conditions were asked to imagine that they had just chosen the fruit salad. Using the aforementioned procedure, they were instructed to indicate what kind of “feelings and emotions” (or “considerations and thoughts”) the memory of this choice would induce (given the assigned temporal perspective). Finally, participants in the affective and cognitive prime conditions were asked to rate which choice they would regret more if they looked back at their decision either 1 day or 10 yr. into the future (manipulated between subjects).

Participants in the no-prime (control) condition were simply asked to anticipate their regret either 1 day or 10 yr. into the future. That is, their spontaneous regrets were measured without any preceding processing manipulation. In all six conditions, participants rated their anticipated regret on a seven-point scale, with higher [lower] ratings representing greater anticipated regret for choosing the virtuous fruit salad [indulgent cake].

**Results.** As shown in figure 3 (upper panel), in the no-prime control condition, greater temporal perspective led to a significant increase in the anticipated regret of choosing the fruit salad relative to the anticipated regret of choosing the cake (5.0 vs. 3.1 in the distant-future vs. near-future anticipated regret condition, respectively;  $t = 3.3, p < .005$ ). This result supports hypothesis 1 and generalizes it to the domain of prospective evaluations of future regret. Further, as predicted by hypothesis 3, the cognitive processing prime attenuated the effect of temporal perspective on self-control regrets (4.6 vs. 4.5 in the distant-future vs. near-future condition, respectively;  $t = .1, NS$ ). In contrast, the significant effect of temporal perspective on self-control regrets was replicated in the affective processing prime (5.1 vs. 3.5 in the distant-future vs. near-future condition, respectively;  $t = 3.0, p < .005$ ). The impact of temporal perspective under the cognitive prime was significantly weaker than under either the affective prime or the no-prime condition, as indicated by the significant interactions between type of processing (cognitive vs.

FIGURE 3

PRIMING AFFECTIVE VERSUS COGNITIVE PROCESSING OF SELF-CONTROL REGRETS (STUDY 3 RESULTS)



no-prime and cognitive vs. affective) and temporal perspective ( $F(1, 92) = 5.1, p < .05$ , and  $F(1, 81) = 4.0, p < .05$ , respectively). Additionally, the self-control regrets reported in the affective prime conditions were strikingly similar to the spontaneous regrets reported in the no-prime conditions, which further supports our proposition that the underlying mechanism of self-control regret is affective.

To further examine the psychological process underlying self-control regret, we coded the open-ended responses provided by participants in the affective and cognitive priming conditions. Protocols were coded based on whether or not they contained the words "guilt" or "missing out." Thus, the coding criteria were highly objective.

As shown in figure 3 (lower panel), the open-ended responses obtained in the affective processing conditions supported the key role of self-control affect, with the significant interaction ( $p < .001$ ) between temporal perspective (near vs. distant, manipulated between subjects) and type of self-control affect (guilt vs. missing out, measured within subjects). Specifically, under affective processing, 50% (10/20) of the open-ended evaluations of the cake choice mentioned guilt when the evaluation was to take place 1 day into the future, compared to only 5% (1/20) when the evaluation was to take place 10 yr. into the future ( $z = 3.7, p < .001$ ). Additionally, under affective processing, none (0/20) of the open-ended evaluations of the fruit salad choice mentioned missing out when the evaluation was to take place 1 day into the future, compared to 25% (5/20) when the evaluation was to take place 10 yr. into the future ( $z = 2.6, p < .01$ ). We constructed a measure of self-control affect by subtracting participants' missing out code from their guilt code. A Sobel test of mediation indicated that self-control affect significantly mediated the impact of time perspective on regret for participants in the affective prime conditions ( $z = 2.2, p < .05$ ). Further, consistent with our conceptualization, under affective processing, mentions of guilt were significantly more likely than mentions of missing out in the near-temporal perspective condition ( $p < .001$ ) but significantly less likely in the distant-temporal perspective condition ( $p < .05$ ).

Figure 3 (lower panel) also illustrates that, under cognitive processing, participants were unlikely to mention either guilt or missing out, and accordingly, the temporal variation in such affect was eliminated.<sup>1</sup> This result implicates the affective nature of the guilt and missing out constructs. Finally, consistent with our conceptualization, a Sobel test indicated that the significant effect on regret of the interaction between type of processing (cognitive vs. affective) and temporal perspective was mediated by the tendency to explicitly mention guilt versus missing out ( $z = 2.2, p < .05$ ). Overall, the results of study 3 provide converging evidence that the mechanism underlying self-control regret is affective and involves temporal variations in the intensity of guilt and missing out (hypothesis 2). As explained in the next section,

the findings cannot be explained by the construal level and errors of omission/commission rival accounts.

## GENERAL DISCUSSION

Despite the voluminous literature on self-control and time inconsistency, there is scant empirical research on the regret associated with these phenomena. Nonetheless, the traditional view is premised on the notion that consumers regret their past myopia and indulgence. In the present research, we questioned the universality of this assumption and proposed that in the long run consumers regret hyperopia, that is, choices of virtue over vice.

### Main Findings and Alternative Explanations

A series of studies showed that greater temporal separation between decisions and their (retrospective or prospective) evaluations enhances regret of righteousness and decreases regret of indulgence. The discovered temporal pattern of regret contributes to a fuller understanding of myopic and hyperopic self-control problem and is diametrically opposed to the traditional assumption that consumers are better off in the long run if they choose virtue over vice. Interestingly, this erroneous belief is also espoused by consumers. Specifically, although our studies show that, in the long run, consumers regret choosing virtues over vices, the pilot test reported earlier reveals that ex ante consumers perceive the exact same vices as offering immediate benefits and negative long-term consequences, whereas they perceive the virtues as offering long-term benefits.

Using both closed-ended ratings and open-ended protocols, we found that the effect of temporal perspective on regret is driven by the decay of emotions of guilt and the increase of feelings of missing out. A key test demonstrated that self-control regrets are generated by temporal variations in affect (guilt and missing out) and are attenuated by cognitive processing. We predicted these findings based on the notion that indulgence guilt is a "hot," intense, and relatively short-lived emotion, whereas missing out represents a relatively cold, wistful feeling that arises gradually (Kahneman 1995; Metcalfe and Mischel 1999; Schwarz and Clore 1996).<sup>2</sup>

The reported studies rule out alternative explanations for the observed reversals in self-control regrets, namely, errors of commission versus omission and levels of construal. Neither of these rival accounts can explain the mediating role of guilt and missing out or the differences between affective and cognitive processing reported in study 3. Further, the analysis of action versus inaction regrets has been limited to past decisions, and research on levels of construal has focused on predictions and preferences regarding future events. In contrast, the present research demonstrated reversals in both regrets of past decisions (studies 1 and 2)

<sup>1</sup>The open-ended responses in the cognitive prime conditions (both near-temporal and distant-temporal perspective) mostly mentioned objective attributes of the cake and fruit salad, such as calories, taste, nutritional value, and price.

<sup>2</sup>Similar to the construct of regret, wistful feelings of missing out are located at the intersection of affect and cognition. Gilovich et al. (1998) differentiated between feelings of wistfulness, such as nostalgia, and "hot" emotions, such as anger and guilt. The former tend to be contemplative and less intense and have also been termed "wistful regret" by Kahneman (1995).

and anticipated regrets of future outcomes (study 3). Next, we discuss these alternative explanations in more detail and report additional studies conducted to examine them.

*Errors of Commission versus Errors of Omission.* Gilovich and Medvec (1995) show that regret follows a systematic time course: actions (errors of commission) evoke more regret in the short term, but inactions (errors of omission) create more regret in the long term. We went to great pains to ensure that the self-control dilemmas that we studied did not confound actions and inactions. Specifically, with the exception of study 2, the investigated regrets related to alternative courses of action (e.g., partying vs. working, eating cake vs. fruit salad). In study 2, we focused on regrets of two opposing sets of inactions, involving either insufficient indulgence (e.g., not spending enough) or insufficient righteousness (e.g., not saving enough). Thus, within each single study, the type of “error” regretted (omission vs. commission) was held constant. Regardless of the framing of both the virtue and the vice option as either actions (studies 1 and 3) or inactions (study 2), we consistently found that vices were regretted in the short term and virtues in the long term.

The distinction between action and inaction regrets may still explain the results to the extent that choices of indulgence are viewed as counter to norms (and therefore as “sins” of commission or “actions”) and righteous choices are perceived as the default or standard behavior (and therefore as “sins” of omission or “inactions”). To test this rival account, we conducted a separate study in which 20 respondents were asked to indicate what they thought was the “norm or standard behavior” in a series of choice situations (consisting of the self-control dilemmas examined in our studies). Respondents could select either the indulgence or the virtue as the norm, and they also had the option of indicating that both equally represented the norm. In the dilemmas used in studies 2 and 3, a majority of respondents selected the indulgence as the norm. Specifically, 90% of respondents perceived choosing the cake as the norm (compared to only 5% who perceived choosing the fruit salad as the norm); similarly, 65% of respondents indicated that traveling, spending money, and enjoying oneself represent the norm or standard behavior during winter break, compared to only 10% who indicated that studying, saving money, and working represent the norm. The indulgences and virtues used in study 1 were perceived as equally representative of the norm. Overall, then, in each of our studies, choices of indulgence were not viewed as relatively more counter to norms (and therefore as “actions”) and righteous choices were not perceived as relatively more representative of default behavior (and therefore as “inactions”). Thus, the temporal pattern of regrets of action and inaction cannot explain the finding that greater temporal perspective enhances (decreases) the regret associated with choosing virtue (indulgence).

*Construal Level Theory.* According to construal level theory (CLT; Trope and Liberman 2003b), temporal distance increases the weight of high-level construals relative to low-level construals. Whereas high-level construals represent the

broad consequences and implications of an event or a choice, low-level construals represent more concrete, incidental details. Based on such a conceptualization of CLT, Trope and Liberman (2003a, 269–70) suggest that “self-controlling . . . decisions would become more likely for more temporally removed situations” and “self-control failures (deciding to smoke a cigarette) are more likely in a close temporal perspective than long in advance.” They explain these predictions based on the notion that “self-control failure stems from failing to attend to the high-level aspects of an immediate behavior.” Thus, CLT predicts that myopia would be less prevalent in distant-future decisions and would be evaluated more negatively under a broader temporal perspective. Consistent with this idea, Trope and Liberman (2000) showed that a decision to indulge in eating a cake has a positive low-level construal but a negative high-level construal. Further, eating the cake was perceived as more attractive in the near than in distant future. CLT, then, would not predict our findings that choosing immediate pleasure over a more prudent alternative evokes less regret when evaluated at a temporal distance.

To directly examine the CLT rival account, we conducted a separate test in which 20 respondents were presented with the self-control dilemmas used in our studies. Respondents were asked to indicate which alternative would be chosen by “a person who considers the broad consequences and implications of his choice” (i.e., a high-level construal) and which alternative would be chosen by “a person who considers the concrete, incidental details of the situation” (i.e., a low-level construal). In all the dilemmas used in our studies, a majority of respondents associated the virtue with high-level construal and the indulgence with low-level construal. For example, 80% of respondents indicated that “a person who considers the broad consequences and implications of his choice” is more likely to choose “working” over “doing something else he enjoys more,” whereas 75% of respondents indicated that “a person who considers the concrete, incidental details of the situation” is more likely to make the opposite choice. The results of this study support the notion that CLT cannot predict our findings that choices of virtues (which are associated with high-level construal) lead to stronger regret in the long-term, whereas choices of indulgence (which are associated with low-level construal) generate greater regret in the short-term.

Contrary to CLT, our conceptualization does not depend on different cognitive construals of near versus distant outcomes but rather relies on variations in self-control affect due to shifting temporal perspectives. Indeed, while our conceptualization predicts the mediating role of guilt and missing out and the debiasing effect of cognitive processing (compared to affective or spontaneous processing), these findings cannot be explained by CLT. In fact, applying CLT to the domain of affect suggests a temporal pattern for self-control affect that is diametrically opposed to the one we observed. Specifically, the affect associated with the high-level goal of choosing virtue, namely, indulgence guilt, should persist or increase for temporally distant regrets, whereas the affect associated with the low-level goal of

indulging, namely, missing out, should decrease for temporally distant regrets.

## Conclusion

The classic literature on self-control focuses on myopia and assumes that consumers regret yielding to hedonic temptations. An alternative approach suggests that consumers sometimes suffer from excessive farsightedness and future-biased preferences, consistently delaying pleasure and overweighing necessity and virtue in local decisions. Reconciling these two approaches (myopia and hyperopia) and constructing a unified model of self-control are worthy challenges for future research. The findings of the present research indicate that consumers repent hyperopia in the long run, when the effect of indulgence guilt is diminished and feelings of missing out on the pleasures of life are stronger. We conclude by noting that, although ex ante consumers perceive virtue as providing long-term benefits and vice as entailing delayed costs, myopia may be farsighted after all. In the long run, indulging can lead to less regret and more satisfaction.

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