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Gratitude: A Tool for Reducing Economic Impatience

David DeSteno[1], Ye Li[2], Leah Dickens[1], and Jennifer S. Lerner[3]

[1]Department of Psychology, Northeastern University; [2]School of Business Administration, University of California, Riverside; and [3]Harvard Kennedy School, Harvard University

Abstract

The human mind tends to excessively discount the value of delayed rewards relative to immediate ones, and it is thought that "hot" affective processes drive desires for short-term gratification. Supporting this view, recent findings demonstrate that sadness exacerbates financial impatience even when the sadness is unrelated to the economic decision at hand. Such findings might reinforce the view that emotions must always be suppressed to combat impatience. But if emotions serve adaptive functions, then certain emotions might be capable of reducing excessive impatience for delayed rewards. We found evidence supporting this alternative view. Specifically, we found that (a) the emotion gratitude reduces impatience even when real money is at stake, and (b) the effects of gratitude are differentiable from those of the more general positive state of happiness. These findings challenge the view that individuals must tamp down affective responses through effortful self-regulation to reach more patient and adaptive economic decisions.

Keywords

emotions, decision making, self-control, open data, open materials

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The propensity of the human mind to overly discount the value of future rewards is well established (Ainslie, 1975; Berns, Laibson, & Loewenstein, 2007; Loewenstein & Thaler, 1989). This phenomenon, known as temporal discounting, has an adaptive basis: Future gains generally hold less utility than do immediate gains of equivalent value (Loewenstein & Prelec, 1992). The excessive extent to which discounting regularly occurs, however, often leads to remarkably impatient decisions that result in suboptimal outcomes (Berns et al., 2007; Frank, 1988; Frederick, Loewenstein, & O'Donoghue, 2003). Indeed, the tendency to favor smaller immediate gains over larger long-term ones may underlie problems ranging from credit-card debt (Meier & Sprenger, 2012) to unhealthy eating and associated increased mortality risk (Chabris, Laibson, Morris, Schuldt, & Taubinsky, 2008; DeSteno, Gross, & Kubzansky, 2013) to substance addiction (Bickel et al., 2007; Kirby, Petry, & Bickel, 1999).

Given the problems that can arise from chronic and excessive devaluing of future rewards relative to immediate ones, it is not surprising that patience has long been viewed as a virtue. The philosophers Hobbes (1642/1949), Hume (1888), and Locke (1693/1964) all emphasized the benefit of combating desires for immediate pleasure that inhibit larger, future gains. In modern psychology, the story has been much the same, with Mischel, Shoda, and Rodriguez (1989) providing perhaps the clearest evidence linking a capacity for patience with future success.

These older and contemporary views both maintain that the appropriate selection of long-term gains over smaller, sooner ones requires decision makers to overcome affective, or "hot," responses (Berns et al., 2007; Frank, 1988; Metcalfe & Mischel, 1999). Spinoza (1670/2007) may have captured it best in stating, "In their [humans'] desires and judgments of what is beneficial, they are carried away by their passions, which take no

Corresponding Author:
David DeSteno, Department of Psychology, Northeastern University, Boston, MA 02115
E-mail: d.desteno@gmail.com

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account of the future or anything else" (pp. 72–73). Supporting this view, recent work has in fact shown that increases in the intensity of experienced sadness exacerbate people's impatience (Lerner, Li, & Weber, 2013). This phenomenon occurs even when that sadness is incidental to the real-stakes financial judgments or choices at hand.

Yet, if one takes seriously the view that the capacity for emotion evolved to provide a relatively automatic means for guiding cognitive and behavioral processes in generally adaptive ways (Keltner, Haidt, & Shiota, 2006), the notion that all emotions necessarily lead to impatience becomes questionable. After all, humans have faced trade-offs between short- and long-term rewards for millennia. In all likelihood, before human ancestors even had the ability to engage in mental time travel and imagine what the future might bring (Boyer, 2008; Suddendorf & Corballis, 2007), they regularly faced challenges in which success required decisions that favored long-term gains—and excessive impatience would have led them astray.

Successful social living for humans frequently requires the acceptance of short-term costs in exchange for future capital (DeSteno, 2009). The benefits derived from cooperation and trust, for example, require one to accept the immediate costs of providing support to another in return for the longer-term gains associated with a lasting relationship characterized by continued exchange (Bartlett & DeSteno, 2006; Frank, 1988; Nowak & Highfield, 2011). Given the long-standing challenges posed by such choices, it seems plausible that one or more specific emotions could act to attenuate impatience stemming from excessive discounting of the value of future rewards. That is, just as sadness increases impatience—presumably to combat a sense of immediate loss (Lerner et al., 2013; cf. Lerner, Small, & Loewenstein, 2004)—one or more discrete positive emotions might enhance patience by attenuating the discounting of future gains (DeSteno, 2009). Because the value of both short- and long-term gains depends on context, intuitive mechanisms favoring each are likely to reside in the mind.

Gratitude: A Tool for Patience?

One might hypothesize that positive affect of any type might attenuate economic impatience. That is, any good feeling might make a person willing to wait for greater financial gain. However, research on emotion and decision making has shown that predictions based solely on the positive or negative valence of affective states are often problematic (DeSteno, Petty, Rucker, Wegener, & Braverman, 2004; Lerner & Keltner, 2000, 2001). Valence constitutes only one dimension of an emotion and, as such, cannot by itself determine the cognitive and behavioral sequelae of any affective state (for a review, see Keltner & Lerner, 2010). Multidimensional theoretical frameworks of emotion and decision making (e.g., the appraisal-tendency framework; see Lerner & Keltner, 2000, 2001; Lerner & Tiedens, 2006) therefore propose that it is important to consider discrete emotional states in predicting choice.

Unlike global positive or negative affect, discrete emotions (e.g., gratitude, sadness) correspond to specific challenges and, therefore, shape subsequent decisions and behaviors in accord with their respective functional goals (DeSteno, 2009; Han, Lerner, & Keltner, 2007; Lerner & Keltner, 2000, 2001). For example, whereas sadness has been shown to increase impatience, disgust, though negative, does not influence patience, as disgust's goal of contamination avoidance is less relevant to resolving trade-offs between immediate and future rewards (Lerner et al., 2013).

The question at hand, therefore, centers on which discrete emotional state could potentially reduce impatience. On the basis of theoretical considerations and a growing body of behavioral evidence, we believe that the emotion gratitude is a likely candidate. Both classical (Smith, 1790/1976) and modern (Frank, 1988) economic theorists have suggested that socially oriented emotions such as gratitude might play a role in inhibiting decisions favoring immediate gratification. Within evolutionary biology, a similar view has emerged. Trivers (1971) argued that gratitude might be a proximate motivator of reciprocal altruism, and Nowak and Roch (2007) suggested that it is linked to indirect upstream reciprocity. Both phenomena require individuals to accept short-term costs in resources (e.g., time, money, physical effort) in an effort to access future gains. Supporting this view, recent work has shown that direct manipulations of gratitude can enhance behaviors that are costly in the moment but hold the potential to build long-term cooperation in the future (Bartlett, Condon, Cruz, Baumann, & DeSteno, 2012; Bartlett & DeSteno, 2006; DeSteno, Bartlett, Baumann, Williams, & Dickens, 2010).

To determine whether gratitude reduces impatience, one must distinguish its effects from those of a more general state of the same valence. That is, if gratitude functions as we believe, its effects should be differentiable from those of other positive states. Findings from the nascent literature examining the impact of nonspecific positive affect on impatience have been mixed, with some studies finding a general null effect or a specific exacerbation of impatience limited to individuals prone to extraversion (Hirsh, Guindon, Morisano, & Peterson, 2010), and others finding a general attenuation of impatience (Ifcher & Zarghamee, 2011; Pyone & Isen, 2011). Such variability likely stems from the fact that induction and measurement procedures for positive states have

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varied greatly, with little focus on delineation of one positive state from another. To date, we know of no previous examinations of the link between gratitude and economic impatience.

In the present experiment, therefore, we directly compared gratitude with happiness in order to examine gratitude's effect on impatience while controlling for a simpler, valence-based explanation. After inducing participants to experience one of these two affective states or a neutral control state, we had them complete a standard set of intertemporal choices designed to assess economic impatience. We expected that gratitude would reduce impatience and that happiness, because of a lack of tight functional ties to temporal trade-offs in rewards, would likely produce a pattern similar to that produced by a neutral state.

Method

We randomly assigned 75 participants (32 males, 43 females; mean age = 19 years, age range = 18–23 years) to one of three emotion-induction conditions: grateful, happy, or neutral (see the Supplemental Material available online for sample-size considerations). Individuals received course credit for participation and were eligible to receive a monetary award based on their decisions in the discounting task (as explained later in this section). Participants sat in individual cubicles equipped with personal computers.

After providing informed consent, participants began their respective emotion-induction procedure. Inductions took the form of autobiographical recall. Participants were asked to recall an event that made them feel grateful, an event that made them feel happy, or the events of a typical day (i.e., the neutral condition). They then spent 5 min writing about the assigned topic in detail. Next, participants completed a measure of emotion that required them to indicate, on 5-point scales (1 = *not at all*, 5 = *very much*), how well each of numerous affective descriptors (e.g., *sad, angry, grateful, happy*) captured their current feeling state (for additional details, see the Supplemental Material available online). Embedded within this measure were descriptors specifically related to the induced emotions. Gratitude was assessed as the mean response to *grateful, appreciative*, and *thankful* (Cronbach's α = .92); happiness was assessed as the mean response to *happy, content*, and *pleasant* (Cronbach's α = .74).

Participants next made 27 choices between receiving smaller cash amounts (ranging from $11 to $80) immediately and larger cash amounts (ranging from $25 to $85) at a point from 1 week to 6 months in the future (Kirby et al., 1999; see the Supplemental Material for the complete set of items). In accord with standard behavioral economic norms (e.g., Weber et al., 2007), we incentivized participants to engage in the task and provide their true preferences by informing them that 1 participant in each session (median of 3 participants per session) would have one of his or her decisions randomly selected and would receive the preferred amount. If the selected choice was for an immediate reward, the participant was paid in cash at the end of the session. If the choice was for a later reward, he or she would return to pick up the money or have it mailed in the form of a check on the specified date.[1]

Results

Emotion-manipulation check

We submitted participants' self-reported emotion intensity scores to a 3 (induction condition: neutral, grateful, happy) × 2 (measured emotion: gratitude, happiness) mixed analysis of variance, with the second factor being repeated, in order to confirm the success of the manipulation. As expected, the Condition × Measured Emotion interaction proved significant, $F(2, 72) = 22.48$, $p < .001$. A planned contrast revealed that participants in both the grateful condition ($M = 4.47$, $SD = 0.38$) and the happy condition ($M = 4.11$, $SD = 0.72$) reported a significant elevation in positive emotions compared with those in the neutral condition ($M = 3.17$, $SD = 0.84$), $F(1, 72) = 45.97$, $p < .001$. In addition, a focused contrast using happiness as a covariate (cf. Lerner & Keltner, 2001) confirmed that participants induced to feel gratitude reported significantly elevated feelings of gratefulness compared with participants induced to feel happy, $F(1, 47) = 34.08$, $p < .001$. A similar focused contrast using gratitude as a covariate confirmed that participants induced to feel happy reported significantly elevated feelings of happiness compared with participants induced to feel gratitude, $F(1, 47) = 10.81$, $p = .002$.[2]

Temporal discounting

We used maximum-likelihood estimation to fit each participant's financial choices to an exponential discounting function, $D(t) = \delta^t$, where t refers to time (in years); larger values of δ (the annual *discount factor*, as opposed to the *discount rate*) indicate more patience. An annual discount factor reflects the value of a fixed amount to be received 1 year from now relative to the same amount received immediately. In other words, a discount factor of .50 would imply that $100 today is worth only $50 in 1 year and $25 in 2 years. Or, put differently, it means that one would be willing to accept $50 today rather than $100 a year from now. The discount factor can range from 0 (extreme impatience) to 1 (extreme patience).

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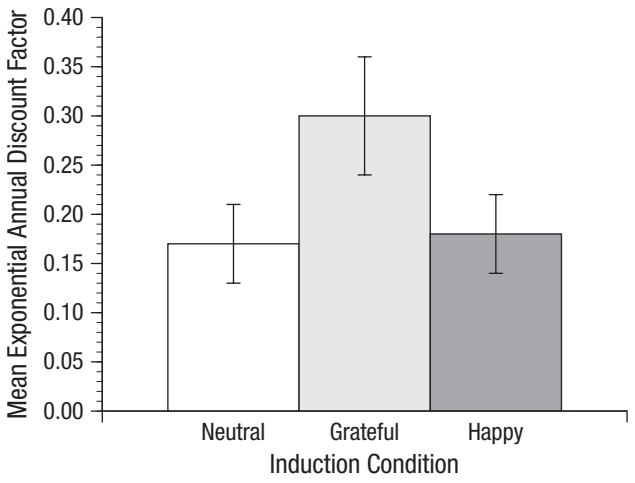

Fig. 1. Mean exponential annual discount factor as a function of induction condition. Error bars indicate ±1 *SE*.

To examine our central prediction that gratitude would result in less impatience (i.e., a larger annual discount factor) compared with happiness and a neutral affective state, we conducted a planned contrast on the mean annual discount factors using weights of −1 for the neutral condition, −1 for the happy condition, and 2 for the grateful condition. Supporting our expectations, the contrast confirmed that participants in the grateful condition evidenced greater patience (i.e., less temporal discounting) in comparison with participants in the neutral and happy conditions (who did not differ significantly from each other), $t(72) = 2.18$, $p = .03$, $d = 0.62$ (see Fig. 1).[3,4] In monetary terms, the mean participant in the grateful condition required \$63 immediately to forgo receiving \$85 in 3 months, whereas the mean participant in the neutral or happy condition required only \$55 immediately.

In order to further test the specific link between gratitude and increased patience, we regressed participants' annual discount factors onto their reported intensities of gratitude and happiness. Within this model, only gratitude emerged as a reliable predictor. Increasing intensities of gratitude corresponded to increasing annual discount factors, $\beta = 0.32$, $t(72) = 2.29$, $p < .03$, $R^2 = .07$; intensities of happiness predicted no appreciable changes, $t(72) < 1.13$.

Discussion

The results reveal that gratitude reduces excessive economic impatience. The comparison of gratitude's effects with those of happiness also confirms the importance of more narrowly parsing the influence of positive emotional states within the context of economic choice. Perhaps most important, the results substantially challenge the view that individuals must tamp down affective responses through effortful self-regulation to make more patient and adaptive economic decisions (cf. Berns et al., 2007; Metcalfe & Mischel, 1999; Mischel et al., 1989).

This final point holds potentially profound consequences. Ample research from many domains has shown that willpower aimed at self-regulation can and does fail, which leads at times to negative outcomes (Vohs & Baumeister, 2011; Vohs et al., 2008; Vohs & Faber, 2007). Ability, time, and motivation to engage in effortful self-regulation are not always available. According to the traditional view of intertemporal choice, such situations can be expected to leave individuals highly vulnerable to decisions favoring excessive impatience—decisions that they will likely come to regret over time. The current findings strongly support a second route to combat excessive impatience. Moreover, this route can operate relatively intuitively and thus effortlessly from the bottom up.

Research has already shown that gratitude enhances behaviors, such as cooperation, that favor long-term gain even at an immediate cost (DeSteno, 2009). The identification of a direct effect of gratitude on impatience not only provides insight into a possible mechanism underlying such behavioral effects, but also opens new possibilities for affect-based interventions. For example, work by Emmons and McCullough (2003) has shown that engagement in simple daily reflective exercises about events for which one is grateful leads to increased subjective well-being. It may well be that similar interventions can be used to inoculate people against the pernicious effects of excessive impatience on their financial and health-related decisions.

Author Contributions

D. DeSteno developed the study concept. All authors contributed to the study design. Data collection was conducted by L. Dickens. All authors contributed to data analysis and interpretation. D. DeSteno, Y. Li, and J. S. Lerner wrote the manuscript. All authors approved the final version of the manuscript for submission.

Declaration of Conflicting Interests

The authors declared that they had no conflicts of interest with respect to their authorship or the publication of this article.

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Supplemental Material

Additional supporting information may be found at http://pss.sagepub.com/content/by/supplemental-data

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Open Practices

All data and materials from this study have been made publicly available via the Harvard Dataverse Network and can be accessed at http://dx.doi.org/10.7910/DVN/24885. The complete Open Practices Disclosure for this article can be found at http://pss.sagepub.com/content/by/supplemental-data. This article has received badges for Open Data and Open Materials. More information about the Open Practices badges can be found at https://osf.io/tvyxz/wiki/view/ and http://pss.sagepub.com/content/25/1/3.full.

Notes

1. Note that this design implies higher transaction costs and potential risks of not receiving payment for future options, relative to immediate options. Although these factors may reduce overall patience levels (Andreoni & Sprenger, 2012), this study focused on relative differences in patience among different emotion conditions, not absolute levels of patience.
2. The levels of the nontarget positive emotions were used as covariates in these analyses given the correlation between reported feelings of gratitude and happiness (r = .57), which regularly results from people's tendency to use the term *happy* as a relevant descriptor for many positive states (cf. Lerner & Keltner, 2001).
3. Contrasts provide increased power for examining predicted mean differences. Simple paired comparisons also confirmed that the discount factor of participants in the grateful condition differed from that of participants in the neutral (p = .05) and happy (p = .08) conditions.
4. Conducting a similar contrast analysis on ranks for the annual discount factors produced a similar result, $t(72) = 1.93$, $p < .06$. Analysis of variance on ranks, though often providing less power than its raw-score counterpart, is less influenced by distributional skews.

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