The Mere Urgency Effect

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In everyday life, people are often faced with choices between tasks of varying levels of urgency and importance. How do people choose? Normatively speaking, people may choose to perform urgent tasks with short completion windows, instead of important tasks with larger outcomes, because important tasks are more difficult and further away from goal completion, urgent tasks involve more immediate and certain payoffs, or people want to finish the urgent tasks first and then work on important tasks later. The current research identifies a mere urgency effect, a tendency to pursue urgency over importance even when these normative reasons are controlled for. Specifically, results from five experiments demonstrate that people are more likely to perform unimportant tasks (i.e., tasks with objectively lower payoffs) over important tasks (i.e., tasks with objectively better payoffs), when the unimportant tasks are characterized merely by spurious urgency (e.g., an illusion of expiration). The mere urgency effect documented in this research violates the basic normative principle of dominance—choosing objectively worse options over objectively better options. People behave as if pursuing an urgent task has its own appeal, independent of its objective consequence.

Keywords: mere urgency effect, urgency, importance, task completion window, task payoff, dominance violation

Some tasks that we face are urgent: if they are not performed within a given time frame, the opportunities to work on them are gone. Other tasks are important: the consequences of either performing or not performing such tasks are sizable. When faced with simultaneous tasks of varying levels of urgency and importance, how do we decide which task to perform?

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As an initial step in addressing this question, we classify different daily tasks into four categories based on two orthogonal characteristics: task importance and task urgency (see table 1). We define task importance as the state that involves significant outcomes. Important (vs. unimportant) tasks are characterized by big (vs. small) outcome magnitudes. We define task urgency as the state that requires immediate responsiveness. Tasks that are urgent (vs. nonurgent) are characterized by short (vs. long) completion windows.

It is not surprising that people frequently prioritize important, urgent tasks (category I) over unimportant or nonurgent tasks, given that the former are characterized by both big outcome magnitudes and short completion windows. For example, one might rush to the hospital to get a cancer screening immediately after noticing a suspicious-looking mole. It is also understandable that unimportant, nonurgent tasks (category IV) are unlikely to be prioritized, given that these tasks are characterized by both small outcome magnitudes and long completion windows. For example, one might never bother to redeem a chocolate ice cream coupon that does not have an expiration date, when nobody in the household likes chocolate ice cream.

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TABLE 1

CATEGORIZATION OF DAILY TASKS BASED ON TASK IMPORTANCE AND TASK URGENCY

I. Important tasks that are urgent
Definitions
- Tasks characterized by *big* outcome magnitudes and *short* completion windows.

Examples
- Get a cancer screening if one has a suspicious-looking mole.
- Work on a manuscript with "minor revision" when an untenured professor needs another publication for the upcoming promotion.

II. Important tasks that are nonurgent
Definitions
- Tasks characterized by *big* outcome magnitudes and *long* completion windows.

Examples
- Schedule a routine medical checkup at the doctor's office.
- Spend quality time with loved ones and show them how much they are cared for and appreciated.

III. Unimportant tasks that are urgent
Definitions
- Tasks characterized by *small* outcome magnitudes and *short* completion windows.

Examples
- Redeem a chocolate ice cream coupon that expires in two hours, even when nobody in one's household really likes chocolate ice cream.
- Consume less fresh candies expiring in March over fresher ones expiring in May, even if one knows that he/she will not be able to finish all the candies before the end of May.

IV. Unimportant tasks that are nonurgent
Definitions
- Tasks characterized by *small* outcome magnitudes and *long* completion windows.

Examples
- Redeem a chocolate ice cream coupon that does not have an expiration date, when nobody in one's household really likes chocolate ice cream.
- Try to find a spa tool set bought several years ago and currently stored somewhere in the basement, when one never engages in any at-home spa activities.

It is not obvious, though, how people make tradeoffs between important, nonurgent tasks (category II) and unimportant, urgent tasks (category III). This is an important question to address, because such direct tradeoffs between urgency and importance often result in suboptimal outcomes. For example, when faced with many candies that were overbought over time, one might choose to first consume less fresh ones that are closer to their expiration date (e.g., candy bars expiring in March), instead of consuming the fresher items with a more distant expiration date (e.g., candy bars expiring in May), even when it is impossible to finish all of the items before their expiration dates (e.g., the end of May). Likewise, choosing to visit a store for its soon-to-end annual sale might lead one to postpone a routine medical checkup, which could be potentially life saving by diagnosing cancer at an early, curable stage.

The current research explores how people make tradeoffs between urgency and importance when the two are in direct conflict (i.e., when one has to choose between an unimportant, urgent task vs. an important, nonurgent task). The results from this research provide compelling support for a mere urgency effect, a tendency to pursue urgency over importance even when normative reasons are controlled for. Importantly, controlling for possible normative reasons and showing a nonnormative mere urgency effect allow us to gain insight into an issue of high real-world relevance: people's tendency to procrastinate on what is important to finish what is urgent goes beyond rational inferences, reflecting a basic psychological preference. In particular, we find that the limited time frame embedded in urgent tasks, a salient restriction in the local decision context, elicits attention, diverting focus away from the magnitudes of task outcomes.

The remainder of the article is organized as follows. We first review normative reasons why people might prefer urgency, followed by a review of the relevant literature on choice restrictions and judgment and decision making, to generate predictions about why people might exhibit a preference for urgency when normative reasons are controlled for. Five experiments then demonstrate the proposed mere urgency effect and the underlying psychological process. We conclude with theoretical contributions as well as implications for managers and policy makers who seek to design interventions to increase the long-term well-being and productivity of their employees and our society.

NORMATIVE REASONS FOR URGENCY PURSUIT

In everyday life, people may pursue urgency over importance for potential normative reasons. First, important tasks are often more difficult, and people are unwilling to expend the effort to perform such tasks (O'Donoghue and Rabin 2001). Second, urgent tasks sometimes are dependent on each other; missing one urgent task may result in a series of losses in the future. Third, urgent tasks may have low supply or high demand, either of which could increase the perceived value of the task (Brock 1968; Cialdini 2009; Worchel, Lee, and Adewole 1975). Fourth, the payoffs of urgent tasks are often realized sooner, and people may value immediate payoffs more than future payoffs (Frederick, Loewenstein, and O'Donoghue 2002; McClure et al. 2004). Fifth, the payoffs of important tasks may be further away from goal completion and less certain, which could decrease motivation (Hull 1932; Kivetz, Urminsky, and Zheng 2006). Finally, people might want to keep all

options viable so that they can finish the urgent tasks first and then work on important tasks later (Shin and Ariely 2004).

The current research intends to explore whether individuals choose to perform urgent tasks over important tasks even when these potential normative reasons are held constant, thus offering new insights into the process through which people make tradeoffs between urgency and importance.

THE MERE URGENCY EFFECT

We propose that people exhibit a mere urgency effect, pursuing urgency over importance, even when potential normative reasons are controlled for. Specifically, the mere urgency effect predicts that people will be more likely to perform an unimportant task over an important task that is clearly dominating in terms of payoffs, when the unimportant task is merely characterized by *spurious* urgency (e.g., an illusion of expiration).

We offer an attention-based account to explain the mere urgency effect. The limited time frame embedded in an urgent task is a salient restriction in the local decision context, and it elicits attention, diverting focus away from the magnitudes of task outcomes (e.g., payoffs). Our theorization builds on research suggesting that choice restrictions tend to draw attention (Berlyne 1969; Botti et al. 2008; Brehm 1966; Cialdini 2009; Pribram and McGuinness 1975) and thus create attentional neglect in the unrestricted domains (Brendl, Markman, and Messner 2003; Shah, Mullainathan, and Shafir 2012), along with findings showing that consumers' actual and mere perception of choice restrictions often produce similar downstream consequences (Cheema and Patrick 2008; Shah, Shafir, and Mullainathan 2015). Various theories posit a linkage between choice restrictions and heightened attentional focus. A choice restriction refers to "any internally or externally imposed boundary that limits and/or confines choices," and can result from both the limited availability of an option and the immediate time frame of an option (Botti et al. 2008, 185). Research on activation suggests that attention is typically drawn to stimuli that are restricted and limited (Berlyne 1969; Pribram and McGuinness 1975). For example, Cialdini (2009) proposes that in situations where something becomes restricted, our cognitive processes are often suppressed and our attention is heightened. Brehm (1966) further explains that when a person's behavioral freedom is threatened by restrictions the person becomes focused on reestablishing what had been threatened. Moreover, the heightened attention resulting from restrictions can create attentional neglect in the unrestricted domains. For example, Shah et al. (2012) demonstrate that participants assigned restricted versus unrestricted budgets in a multiple-round game failed to consider what would come in the future rounds (i.e., neglecting problems where restriction is not salient) as they were engaged in addressing the demands of each current round, which resulted in excessive borrowing. Brendl et al. (2003) show that habitual smokers who had not yet smoked (i.e., experienced restriction in the domain of smoking) purchased fewer raffle tickets to win cash (i.e., neglected stimuli from the unrestricted monetary domain) than those who had smoked. In a similar vein, participants who felt hungrier rated nonfood products such as DVD players and sneakers as less attractive (Brendl et al. 2003).

Our theorization is also inspired by the notion that the psychological tension and discomfort triggered by task urgency result in increased attentional focus on urgent tasks and subsequent urge to pursue them. For example, prior research on the Zeigarnik effect has shown that the psychological tension arising from task incompletion leads people to remember incomplete tasks better than complete tasks (Atkinson 1953; Zeigarnik 1935). Accordingly, the psychological tension and discomfort triggered by task urgency might generate attentional focus on urgent tasks and in turn prompt actions toward resolving such tension—in this case, driving one to resolve the tension at the sacrifice of objectively higher payoffs. In addition, behavioral decision literature has argued that visceral, affective reactions (e.g., tension, discomfort) to stimuli tend to quickly redirect cognitive processing toward high-priority concerns, such as imminent sources of danger, before people could cognitively assess the overall desirability of options (Finucane et al. 2000; Kahneman and Frederick 2002; Loewenstein et al. 2001; Stanovich and West 2000). In the context we are studying, the psychological tension and discomfort triggered by task urgency might have prevented the controlled cognitive operations from assessing the objective payoffs of different options at the moment of task choice, resulting in a final decision that remains anchored on initial intuitive impression, that is, urgency pursuit. Furthermore, the literature on time pressure has shown that decision makers under limited time frames tend to employ noncompensatory decision rules that focus attention on a particular negatively valenced attribute dimension instead of multiple attributes across all the choice options (Ben Zur and Breznitz 1981; Svenson and Eland 1987; Svenson, Edland, and Slovic 1990). Along the same lines of reasoning, the tension generated by task urgency might be potent enough to divert consumers' attention away from task payoffs and lead them to pursue urgent tasks, beyond their objective consequences.

The findings reviewed above suggest that task urgency, a particular instantiation of choice restriction (Botti et al. 2008), would draw one's attention toward the time aspect of the tasks, and away from the outcome (payoff) aspect, and thereby increase one's tendency to perform an urgent task even if it is unimportant in terms of outcome. Furthermore, previous research suggests that consumers'

mere perception of choice restrictions alone can affect their judgment and decision making. For example, Shah et al. (2015) show that perceived time constraint can produce the same effects on valuation as actual time constraint, leading people to focus on current pressing needs rather than irrelevant contextual cues. Likewise, Cheema and Patrick (2008) find that the pure framing of redemption windows as restrictive or expansive, with the actual redemption date held constant, can affect promotion evaluation. Thus, we expect that even spurious task urgency (e.g., an illusion of task expiration) will be sufficient to produce a preference for unimportant tasks.

The mere urgency effect we study is different from the restriction effects documented in the prior literature (Ge, Messinger, and Li 2009; Gierl and Huettl 2010; Inman, Peter, and Raghubir 1997; Lynn 1989; Shah et al. 2012; Snyder and Fromkin 1980; Stock and Balachander 2005; Van Herpen, Pieters, and Zeelenberg 2009; Verhallen and Robben 1994). For example, previous research on commodity theory shows that restrictions from access to a commodity increase the extent to which consumers value that commodity (Brock 1968; Brock and Brannon 1992). Such extant restriction effects are largely driven by rational inferences people made about the restricted options, such as about their quality (Stock and Balachander 2005), their price (Lynn 1989), their uniqueness (Snyder and Fromkin 1980), their popularity (Van Herpen et al. 2009), and their status (Gierl and Huettl 2010). In contrast, our research intends to document a restriction effect that resists such normative inferences. We do so by employing a joint evaluation setup (Hsee 1998; Hsee and Zhang 2010) in which the restricted option is clearly dominated by the nonrestricted option. Specifically, the featured restricted option is evidently not of higher demand, quality, cost, and exclusivity, yet is apparently inferior in terms of monetary payoffs, as compared to the featured nonrestricted option. While some previous studies have also employed a similar within-subject design presenting respondents with both the restricted and nonrestricted options simultaneously (Inman et al. 1997; Shah et al. 2012; Verhallen and Robben 1994), the restricted options in those studies are not obviously dominated by the nonrestricted alternatives. To the best of our knowledge, the current work is the first to investigate whether people would pursue a restricted option even when it is unequivocally dominated by a nonrestricted alternative.

The mere urgency effect we study also differs from and extends prior findings on the effects of time pressure, a particular form of restriction that requires one to make a decision within a limited time frame (Jacoby, Szybillo, and Berning 1976), in at least two ways. First, extant time pressure literature (Ben Zur and Breznitz 1981; Dhar and Nowlis 1999; Jacoby et al. 1976; Pieters and Warlop 1999; Reutskaja et al. 2011; Svenson and Eland 1987; Svenson et al. 1990) has mainly focused on situations where consumers do not have a sufficient amount of time to make a decision. For instance, they have to finish a task or complete a decision step within 5 seconds, while the task or step itself commonly takes at least 15 seconds. Our research instead focuses on spurious task urgency—that is, situations where consumers always have sufficient time to make a decision as well as to finish a task. In particular, we investigate scenarios where the duration of the focal tasks is fixed and is always shorter than its expiration time. Second, while previous research has employed the eye-tracking methodology to document the general phenomena that the search process under time pressure is random with respect to value (Reutskaja et al. 2011) and that visual attention is positively related to final choices (Pieters and Warlop 1999), as well as provided laboratory evidence that time pressure increases reliance on negative features (Ben Zur and Breznitz 1981; Svenson and Eland 1987) and noncompensatory decision rules (Svenson et al. 1990), these prior studies have never demonstrated a *counternormative* time pressure effect that violates the basic normative principle of dominance—choosing objectively worse options over objectively better options.

THE PARADIGM TO TEST THE MERE URGENCY EFFECT

As noted earlier, people in real life pursue urgency for multiple reasons that are potentially normative. To see whether people still pursue urgency even without such potential normative reasons, we introduce a highly simplified yet well-controlled and flexible paradigm.

Our paradigm asks participants to make either single-shot or repeated tradeoff decisions between urgent tasks and important tasks within the fixed time span of an experiment. Instead of manipulating real urgency (e.g., high immediacy of task expiration), we manipulate spurious urgency by inducing an illusion of task expiration such that the duration of a task is always shorter than its expiration time (i.e., participants in each experiment can always finish the focal tasks before they expire). We manipulate importance by varying the payoffs (e.g., money and gift cards) participants can earn through the tasks specified in the experiment, while holding constant other characteristics of the focal tasks, including task difficulty, task interdependence, goal progress, supply and demand, and outcome immediacy.

Our paradigm is operated through both physical laboratories and Amazon Mechanical Turk (MTurk), an online marketplace where an on-demand, scalable workforce can select from thousands of Human Intelligent Tasks (HITs) posted by requesters each for a fixed wage that is paid instantly upon completion of the work specified in a HIT. We study whether conventional laboratory participants would give up a higher-value prize and whether

professional contractual workers on MTurk would sacrifice a bonus amount equivalent to a significant percentage of their fixed wage, in order to pursue low-payoff tasks that are merely characterized by an illusion of task expiration. To ensure that this proposed preference for low-payoff tasks is not driven by participants' desire to keep all options viable (Shin and Ariely 2004; e.g., participants might plan to finish the tasks with short completion windows first and then work on high-payoff tasks with longer completion windows afterward), all participants would be explicitly informed up front that they can perform only one task in an experiment, that they can participate in the experiment only once, and that they will not be paid if they participate more than once.

The paradigm described above enables us to explore whether people pursue urgency beyond the potential normative reasons identified earlier. Employing this paradigm, we test the proposed mere urgency effect and the underlying process across five experiments. Specifically, experiment 1 provides initial empirical support for the mere urgency effect, demonstrating that laboratory participants were more likely to perform an unimportant (vs. important) task, consequently earning fewer Hershey's Kisses, when the unimportant task was characterized by spurious urgency. Experiments 2–4 provide further evidence for the mere urgency effect, showing that MTurk workers were more likely to sign up for a spuriously urgent assignment, thereby forfeiting the opportunity to make more money or win a higher-value Amazon gift card. These experiments also provide process evidence by showing the mediating role of attentional focus and the moderating roles of outcome salience and perceived busyness.

EXPERIMENT 1: EARNING FEWER HERSHEY'S KISSES

The objective of experiment 1 was to provide initial evidence for the mere urgency effect. We did so through a single-shot choice setting developed based on the aforedescribed paradigm: whereas we operationalized task importance by varying the number of Hershey's Kisses participants could earn, we induced task urgency through an illusion of expiration. We predicted that a higher percentage of students would choose the low-payoff assignment and thus earn fewer Hershey's Kisses, when the low-payoff assignment was characterized by spurious urgency.

Methods

One hundred twenty-four students (67 females; $M_{age} = 20.02$, SD = 1.39) from a large US university completed a laboratory experiment in exchange for course credit. Students were told that in this study, they could choose from one of two assignments, Task A or Task B, to work on, and that they could earn a bonus by completing either task. All students were explicitly informed up front that they could perform only one task in this experiment, that they could participate in this experiment only once, and that they would not receive extra credit if they participate more than once. Students were randomly assigned to one of two conditions, urgency or control. All students were told that both tasks required them to perform the same type of activity—that is, to write five short reviews of randomly chosen product categories, such as smartphones—and the tasks did not differ in terms of difficulty and length. Specifically, they would be presented with five product categories, given a total of 5 minutes, and asked to write five reviews within the 5 minute window.

We operationalized task importance by varying the value of the prize for completing each task. We operationalized urgency through task expiration time. Specifically, in the urgency condition, students learned that the two tasks differed in two attributes—their bonus level (i.e., one of the tasks would offer them a bonus of 6 points per review, and the other task would offer them a bonus of 10 points per review) and task expiration time (i.e., one task would expire in 10 minutes, and the other would expire in 24 hours). Students were further told that for every 10 points they earn, they would receive one chocolate Hershey's Kiss. To eliminate any possible inferences students might make about these two tasks, they were further informed that the attribute level of each task would be randomly decided by two randomizers (see appendixes A and B). While one randomizer always assigned students to earn a bonus of 6 points per review (i.e., 30 points/three Hershey's Kisses in total) by completing Task A or a bonus of 10 points per review (i.e., 50 points/five Hershey's Kisses in total) by completing Task B, the other randomizer told them that Task A would expire in 10 minutes and Task B would expire in 24 hours. In the control condition, students were told that the two tasks differed only in their bonus level, which would be randomly determined by a randomizer (which revealed the same outcome as in the urgency condition), and that both tasks would expire in 24 hours.

Students then indicated which assignment they would work on. After indicating their choice, students started working on the task of their choice, in which they first wrote a short review for a product category within 1 minute. When 1 minute was up, the computer automatically directed them to the next product category. The same procedure repeated until they finished all five reviews. After the task was completed, each student was given a prize of either three Hershey's Kisses or five Hershey's Kisses depending on his or her task choice.

Results and Discussion

Pretests. To check the effectiveness of our urgency manipulation and importance operationalization, we recruited

a separate group of participants ($N = 49$), presented them with instructions identical to those used in the urgency condition of the main experiment, and asked them to rate the urgency and importance of each of the two tasks by indicating "To what extent do you consider Task A/B to be urgent (i.e., involving a short completion window)?" on a seven-point scale anchored by "1 = Not urgent at all; 7 = Very urgent" and "To what extent do you consider Task A/B to be important (i.e., involving a high payoff)?" on a seven-point scale anchored by "1 = Not important at all; 7 = Very important," respectively. Indeed, Task A was considered significantly more urgent ($M = 5.59$, SD = 1.44 vs. $M = 2.73$, SD = 1.66; $t(48) = 8.59$, $p < .001$; $d = 1.23$) and less important than Task B ($M = 4.12$, SD = 1.63 vs. $M = 5.10$, SD = 1.48; $t(48) = 3.40$, $p = .001$, $d = .49$). In addition, participants rated the difficulty of each task ("To what extent do you consider Task A/B to be difficult?" 1 = Not difficult at all; 7 = Very difficult) and no difference was found in task difficulty ($M = 3.53$, SD = 1.45 vs. $M = 3.37$, SD = 1.48; $t(48) = 1.00$, $p = .32$, $d = .14$).

Task Choice. Although the important task in this study (i.e., performing the assignment that offered a bonus of five Hershey's Kisses) clearly dominates the unimportant task (i.e., performing the assignment that offered a bonus of three Hershey's Kisses), the mere urgency effect predicts that workers would be more likely to perform the low-payoff assignment when its expiration time was 10 minutes as compared to 24 hours. Consistent with this prediction, whereas 13.3% of students chose to work on the low-payoff task in the control condition, 31.3% of students chose to work on it in the urgency condition, $\chi^2(1) = 5.69$, $p = .017$, $\varphi = .21$. It is worth noting that in this and the subsequent experiments, we observed that a few participants opted to work on the low-payoff option even in the control condition. We speculate that this might have happened for idiosyncratic reasons or preferences (e.g., these participants do not care about the payoffs and pick randomly). Since such idiosyncratic reasons should be taken care of by random assignment, as long as we observe an increase of choice share in the urgency condition, the mere urgency effect is supported.

Discussion. The mere urgency effect is insusceptible to a series of seemingly alternative explanations. First, the two tasks in this study were obviously identical in terms of difficulty, interdependence, and goal progress. Therefore, such factors cannot possibly account for the effect. Second, for each student, the supply of the two tasks was fixed (i.e., each student could only perform the task once). The inferred demand of the two tasks should not differ, since students were told that the payoff and expiration time of each task were randomly decided by the computer. Accordingly, supply-demand is unlikely to drive the effect. Third, the outcomes of the two tasks did not differ in their immediacy of rewards (students knew they would receive payments immediately after they finished the study). Finally, given that students were explicitly informed up front that they could perform only one task in this experiment, and that they could participate in this study only once, it is unlikely that the motivation to keep options viable (Shin and Ariely 2004) might have led them to choose the urgent task.

Of note, the low-payoff option in the current experiment was linked to spurious urgency, because students in both the urgency and control conditions could finish the task (which always automatically ended in exactly 5 minutes) within the respective time window provided (i.e., 10 minutes and 24 hours, respectively). Yet students were willing to give up a high-value prize that was 1.67 times the value of the low-value prize, merely because the low-payoff assignment was characterized by an illusion of expiration.

Together, the results from experiment 1 provide preliminary evidence for the mere urgency effect, showing that students were more likely to perform an unimportant task (and thus earn fewer Hershey's Kisses) when it was spuriously urgent. In the next four studies, we provide direct evidence for the proposed attention-based explanation by showing that the effect of time frame on task choice is mediated by attentional focus (experiments 2 A and 2B) and moderated by outcome salience (experiment 3) and perceived busyness (experiment 4).

EXPERIMENTS 2 A AND 2B: MAKING LESS MONEY—AN ATTENTION-BASED ACCOUNT

The main objective of experiments 2A and 2B was to directly test the proposed attention-based psychological process by examining the mediating role of attentional focus in the relationship between urgency and task choice. Employing the same paradigm, we presented MTurk workers with either a single-shot choice between a high-payoff, nonurgent assignment and a low-payoff, spuriously urgent assignment (urgency condition), or a high-payoff assignment and a low-payoff assignment that were both nonurgent (control condition). Additionally, we either asked workers to explain at the end of the experiment how they decided which tasks to work on and then coded their attentional focus based on the open-ended responses (experiment 2A), or directly asked workers to rate the amount of attention they paid to the bonus amounts and task expiration time on two separate Likert scales anchored by "1= not at all" and "8 = very much" (experiment 2B). We expected that contractual workers on MTurk whose daily job involves signing up to work on different HITs in order to make money would be more likely to choose the low-payoff assignment and thus make less money, when the low-payoff assignment was characterized by an illusion of expiration. Further, we predicted that this effect would be mediated by attentional focus.

Experiment 2A Methods

Two hundred three workers recruited from MTurk (116 females; $M_{age} = 37.21$; SD = 12.78) completed a study for a fixed wage of $.50 plus a bonus of either $.12 or $.16 depending on which task they chose in the experiment. Before signing up, workers were told that in this HIT, they could choose one of two assignments to work on, and that by completing either task they could earn a fixed wage of 50 cents as well as a bonus that would be added to their MTurk account. They were explicitly informed up front that they could participate in this study only once and that they would not be paid if they participate more than once. After accepting the HIT, workers were randomly assigned to one of two conditions, urgency or control. Similar to the procedure used in experiment 1, all workers were told that both tasks required them to perform the same type of activity—to type some randomly generated six-letter strings (e.g., "rlgows") in reverse order (e.g., "swoglr")—and the tasks did not differ in terms of difficulty and length. Specifically, workers would be presented with 100 strings, given a total of 3 minutes, and asked to type as many strings as possible within the 3 minute window.

We operationalized task importance by varying the bonus offered to complete each task. We operationalized urgency through task expiration time. Specifically, in the urgency condition, workers learned that the two tasks differed in two attributes—their bonus level (i.e., one task offered 12 cents, and the other offered 16 cents) and task expiration time (i.e., one task expired in 5 minutes, and the other expired in 50 minutes). To eliminate any possible inference workers may make about these two tasks, we further informed them that the attribute level of each task would be randomly determined by a randomizer (see appendixes C and D). Similar to experiment 1, workers were then shown a randomizer, which always paired the task with inferior payoff (that offered a bonus of 12 cents) with the short expiration time (5 minutes) and paired the high-payoff task (that offered a bonus of 16 cents) with the long expiration time (50 minutes). In the control condition, workers were told that the two tasks differed only in their bonus level (12 vs. 16 cents) which would be randomly determined by a randomizer, and that both tasks would expire in 50 minutes.

Workers then indicated which assignment they would work on. We recorded how much time each worker spent making the assignment choice. After indicating their choice, workers started working on the task of their choice, in which they were asked to type as many strings as possible in reverse order in 3 minutes. To capture workers' spontaneous attentional focus, all workers then responded to an open-ended question about how they decided which tasks to work on. Finally, to examine whether the urgency manipulation changed workers' perception about the tasks, we measured the perceived differences in payoffs, difficulty, and desirability, each on a seven-point scale (e.g., "To what extent do you think the two tasks differ in their payoffs?" 1 = Not at all, 7 = Very much). After the HIT was completed, the fixed wage of 50 cents as well as a bonus of either 12 cents or 16 cents was deposited to each worker's payment account.

Experiment 2A Results and Discussion

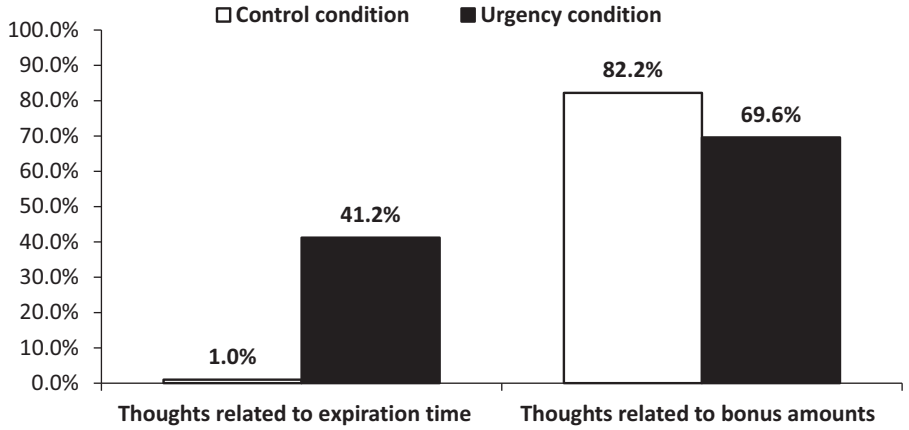
Pretests. To check the effectiveness of our urgency manipulation and importance operationalization, we recruited a separate group of participants ($N = 53$), presented them with instructions identical to those used in the urgency condition of the main experiment, and asked them to rate the extent to which they consider each of the tasks to be "urgent (i.e., involving a short completion window)" and "important (i.e., involving a high payoff)" on two separate scales anchored by "1 = Not urgent at all, 7 = Very urgent" and "1 = Not important at all; 7 = Very important." Indeed, the task that offered 12 cents and expired in 5 minutes was considered significantly more urgent ($M = 5.40$, SD = 1.29 vs. $M = 3.32$, SD = 1.59; $t(52) = 6.59$, $p < .001$; $d = .90$) and less important than the task that offered 16 cents and expired in 50 minutes ($M = 3.92$, SD = 1.59 vs. $M = 4.58$, SD = 1.67; $t(52) = 2.83$, $p = .007$, $d = .39$). Participants also rated the difficulty of each task on a seven-point scale anchored by "1 = Not difficult at all; 7 = Very difficult" and no difference was found in task difficulty ($M = 3.96$, SD = 1.68 vs. $M = 3.89$, SD = 1.48; $t(52) = 1.00$, $p = .37$, $d = .05$).

Task Choice. Although the important task (i.e., the task that offered a bonus of 16 cents) clearly dominates the unimportant task (i.e., the task that offered a bonus of 12 cents), the mere urgency effect predicts that workers would be more likely to perform the low-payoff assignment when its expiration time was 5 minutes as compared to 50 minutes. Consistent with this prediction, whereas 13.9% of workers chose to work on the low-payoff task in the control condition, 35.3% of workers chose to work on the low-payoff task in the urgency condition, $\chi^2(1) = 11.43$, $p < .001$, $\varphi = .24$.

Decision Time and Task Perception. Time taken on making the task choice was not significantly different across the urgency and control conditions ($M = 7.22$ seconds, SD = 24.47 vs. $M = 4.56$ seconds, SD = 4.26; $F(1, 200) = 1.15$, $p = .286$, $\eta_p^2 = .006$), suggesting that the mere urgency effect is unlikely to be driven by changes in cognitive processing (Petty and Cacioppo 1986). The perceived differences in task payoffs ($M = 3.99$, SD = 1.58 vs. $M = 3.94$, SD = 1.69; $F(1, 200) = .05$, $p = .828$, $\eta_p^2 = 0$), difficulty ($M = 1.87$, SD = 1.57 vs. $M = 1.66$, SD = 1.36; $F(1, 200) = 1.06$, $p = .304$, $\eta_p^2 = .005$), and desirability ($M = 4.27$, SD = 1.65 vs. $M = 4.60$, SD = 1.73; $F(1, 200) = 1.87$, $p = .173$, $\eta_p^2 = .009$) did not vary across conditions, ruling

FIGURE 1

IMPACT OF TIME FRAME ON THOUGHTS RELATED TO EXPIRATION TIME AND BONUS AMOUNTS (EXPERIMENT 2A)



out potential normative inferences people made about the tasks.

Attentional Focus. The number of sentences participants wrote with regard to how they decided which task to work on did not differ across conditions ($M = 1.27$, SD = .65 vs. $M = 1.25$, SD = .67; $F(1, 201) = .09$, $p = .771$, $\eta_p^2 = .000$). Two raters blind to the hypotheses and condition coded the open-ended reasons for assignment choice participants listed by answering two Yes/No questions, with one capturing attention to task expiration time ("Did the participant mention anything related to the time dimension of the tasks?" Yes = 1, No = 0; Cohen's Kappa = .87, $p < .001$), and the other capturing attention to bonus amounts ("Did the participant mention anything related to the payoffs of the tasks?" Yes = 1, No = 0; Cohen's Kappa = .93, $p < .001$). Disagreements were resolved through discussion. As predicted, the thought protocol analysis revealed that participants in the urgency condition were more likely to mention thoughts related to expiration time (41.2% vs. 1.0%, $\chi^2(1) = 49.09$, $p < .001$, $\varphi = .49$) and less likely to mention thoughts related to payoffs (69.6% vs. 82.2%, $\chi^2(1) = 4.38$, $p = .036$, $\varphi = .15$) than those in the control condition (see figure 1).

We hypothesize that the relative focus on expiration time versus bonus amount mediates the effect of urgency on task choice. To capture the relative focus, we examined to what extent the open-ended thoughts focused on expiration time relative to bonus amounts. The relative attentional focus measure ranges from –1 to +1, with higher values representing relatively more attention to time versus bonus amount. Specifically, if a thought mentioned both task expiration time and bonus amounts, then the relative attentional focus is equal to 0. If a thought mentioned task expiration time only, then the relative attentional focus is equal to 1. If a thought mentioned bonus amounts only, then the relative attentional focus is equal to –1. Consistent with our prediction, the relative attentional focus mediated the effect of urgency on task choice ($\beta = 1.42$, SE = .46, 95% CI = [.87, 2.21]).

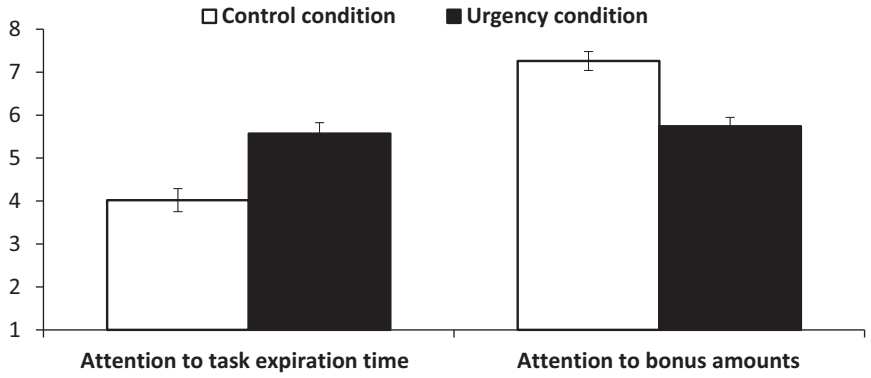
Discussion. These findings support our thesis that restricted time frames elicit attention, diverting focus away from the magnitudes of task outcomes, and that this shift in attentional focus leads to a stronger preference for urgent tasks with low payoffs over important tasks with higher payoffs yet longer completion windows. Of note, we do not have any hypothesis regarding whether and how our manipulation would influence task performance. Nevertheless, we analyzed the performance data, reported the number of strings typed and the number of strings correctly typed in the web appendix, and discussed the findings in General Discussion.

Experiment 2B Methods

Two hundred four workers recruited from MTurk (103 females; $M_{age} = 36.21$; SD = 10.98) completed a study for a fixed wage of $.50 plus a bonus of either $.12 or $.16 depending on which task they chose in the experiment. The operationalization of importance and the manipulation of urgency were the same as experiment 2A. However, instead of asking workers to explain their task choice in an open-ended fashion, we had workers report their attentional focus by responding to two questions: while deciding which task to complete, to what extent they paid attention to the bonus amounts (1 = Not at all; 8 = Very much) and the task expiration time (1 = Not at all; 8 = Very much). These two attentional focus measures were negatively correlated ($r = –.23$, $p = .001$).

FIGURE 2

IMPACT OF TIME FRAME ON MEASURED ATTENTION TO EXPIRATION TIME AND BONUS AMOUNTS (EXPERIMENT 2B).



Error bars: +/–1 SE

Experiment 2B Results and Discussion

Replicating the results of experiment 2A, significantly more workers chose to work on the low-payoff option in the urgency versus control condition (48.1% vs. 7.3%; $\chi^2(1) = 41.27$, $p < .001$, $\varphi = .45$). Moreover, workers paid significantly more attention to task expiration time ($M = 5.56$, SD = 2.56 vs. $M = 4.02$, SD = 2.70; $F(1, 202) = 17.53$, $p < .001$, $\eta_p^2 = .08$) and significantly less attention to the bonus amounts in the urgency ($M = 5.70$, SD = 2.48 vs. $M = 7.26$, SD = 1.71; $F(1, 202) = 26.55$, $p < .001$, $\eta_p^2 = .17$) versus control condition (see figure 2). To capture the relative attentional focus on expiration time versus bonus amount, we created a composite measure by subtracting attention to bonus amount from attention to expiration time. The new measure ranges from –7 to +7, with higher values representing relatively more attention to time versus bonus amount. As expected, workers paid relatively more attention to expiration time in the urgency versus control condition ($M = -.14$, SD = 4.05 vs. $M = -3.24$, SD = 3.10; $F(1, 202) = 36.99$, $p < .001$, $\eta_p^2 = .16$). The relative attentional focus mediated the effect of urgency on task choice ($\beta = 1.25$, SE = .34, 95% CI = [.70, 2.04]).

Discussion. Together, the results of experiments 2A and 2B provide converging support for the attention-based explanation showing that the effect of urgency on choices between urgent and important tasks is mediated by attentional focus. Similar to the choice setup used in experiment 1, the two tasks in experiments 2A and 2B were identical in terms of task difficulty, task interdependence, and goal progress. Moreover, for each worker, the supply of the two tasks was fixed (i.e., one), and the inferred demand of the two tasks should not differ, since workers were told that the payoff and expiration time of each task were randomly decided by the computer. In addition, the outcomes of the two tasks did not differ in terms of their immediacy (the payments were deposited to workers' account upon completion of the HIT). Yet contractual workers on MTurk whose daily job involves signing up to work on different HITs in order to make money were still willing to give up an amount equivalent to 8% of their full wage specified in the current contract, merely because the low-payoff assignment was characterized by an illusion of urgency. Further, given that the available time for either task (5 or 50 minutes) was always greater than its duration (3 minutes), that all workers were explicitly informed up front that each worker could perform only one task in this experiment, and that they could participate in this experiment only once, it is unlikely that the motivation to keep options viable (Shin and Ariely 2004) might have led people to choose the urgent task.

To summarize, so far we have established the existence of the mere urgency effect among both college students and contractual workers. We demonstrate that such preference for urgency over importance is not driven by potential normative reasons such as task difficulty, task interdependence, supply/demand, reward immediacy, goal progress, and the motivation to keep options viable. We find mediation evidence for the proposed attention-based account through both indirect thought listing procedure and direct self-reported measures, ruling out other alternative explanations, including changes in cognitive processing, as well as perceived differences in task payoffs, difficulty, and desirability. To further rule out the possibility that participants in the urgency condition might have focused more on the time dimension solely because it was the only attribute that differed between conditions, the next two experiments

examine whether an additional reminder of task payoffs (outcome salience) and people's chronic attentional focus on the time dimension (perceived busyness) moderate the mere urgency effect. No significant interaction patterns should emerge according to this alternative account, as time remains the only attribute that differs between conditions. However, if the mere urgency effect arises from increased attention paid to time versus payoff dimension, we would expect that outcome salience attenuates and perceived busyness accentuates the mere urgency effect.

EXPERIMENT 3: OUTCOME SALIENCE ATTENUATES THE MERE URGENCY EFFECT

According to our theory that the mere urgency effect arises from the attention devoted to restricted time frames, we should be able to moderate this effect by shifting workers' attention away from task completion windows to task outcome magnitudes. For example, experimentally increasing the salience of task outcomes (e.g., reminding people of the payoff of each task before making task choices), should lead people to focus less on task urgency and thus exhibit a weaker preference for unimportant tasks. Therefore, we predicted that increasing outcome salience would attenuate the mere urgency effect.

To test this prediction, we manipulated outcome salience, in addition to urgency. More specifically, we presented MTurk workers the two assignments used in experiment 2A and made task outcomes salient for half of the workers by reminding them of the payoff of each task. We expected that when the reminder of the task payoffs was absent, workers would exhibit a greater preference for the low-payoff assignment in the urgency versus control condition, as in our studies presented thus far. However, when the reminder of the task payoffs was present, there would be no difference in the choice share.

Methods

Four hundred two workers from MTurk (242 females; $M_{age} = 35.81$; SD = 12.07) completed an online study for a fixed payment of \$.50 plus a bonus of either \$.12 or \$.16 depending on their task choice in the experiment. Experiment 3 employed a 2 (Time Frame: Urgency vs. Control) × 2 (Outcome salience: Salient vs. Nonsalient) between-subjects design with random assignment. The instructions provided in the outcome nonsalient conditions were identical to those in experiment 2A. In the outcome salient conditions, workers were presented with an additional reminder that "If you choose Task A, you will earn a bonus of 12 cents. If you choose Task B, you will earn a bonus of 16 cents" before indicating their task choice.

After indicating their choice, workers worked on the task of their choice. When 3 minutes ran out, all workers were automatically directed to the last block of the survey, which asked them to indicate while deciding which task to take, to what extent they paid attention to the bonus amounts (1 = Not at all; 8= Very much) and the task expiration time (1= Not at all; 8 = Very much). After the HIT was completed, a fixed wage of 50 cents as well as a bonus of either 12 cents or 16 cents was deposited to each worker's payment account.

Results and Discussion

Task Choice. To examine whether outcome salience moderates the mere urgency effect, we conducted a logistic regression in which we regressed task choice on time frame, outcome salience, and the interaction term of time frame and outcome salience. We obtained a significant interaction effect (B = –1.16, SE = .54, Wald (1) = 4.54, $p = .033$), along with a significant main effect of time frame (B = 1.54, SE = .40, Wald (1) = 15.18, $p < .001$). The main effect of outcome salience was not significant (B = .49, SE = .44, Wald (1) = 1.24, $p = .265$; see figure 3).

Replicating the results from our previous studies, when outcome magnitudes were not salient, workers were more likely to choose the low-payoff option when it was urgent than when it was not (33.7% vs. 9.8%, $\chi^2(1) = 16.87$, $p < .001$, $\varphi = .29$). However, in the outcome salient conditions where the payoffs for both tasks were highlighted at the moment of task choice, the mere urgency effect was attenuated and no difference in task choice was found (20.6% vs. 15.0%, $\chi^2(1) = 1.08$, $p = .359$, $\varphi = .07$). Further, consistent with our theorization, the choice share of the low-payoff option in the urgency condition was significantly lower when workers were reminded of task payoffs (33.7% vs. 20.6%; $\chi^2(1) = 4.34$, $p = .037$, $\varphi = .15$). The difference in the control condition was not significant (9.8% vs. 15.0%; $\chi^2(1) = 1.26$, $p = .26$, $\varphi = .08$).

Attentional Focus. Next, we conducted a 2 (Time Frame: Urgency vs. Control) × 2 (Outcome Salience: Salient vs. Not Salient) ANOVA on the relative attention measure created by subtracting the attention to bonus amount from the attention to expiration time, which revealed a significant main effect of time frame ($F(1, 398) = 42.67$, $p < .001$, $\eta_p^2 = .10$) along with a marginally significant interaction between time frame and outcome salience ($F(1, 398) = 2.76$, $p = .098$, $\eta_p^2 = .10$). The main effect of outcome salience was not significant ($F(1, 398) = 1.05$, $p = .307$, $\eta_p^2 = .007$). As predicted, when outcome magnitudes were not salient, participants paid relatively more attention to expiration time (i.e., less attention to bonus amounts) in the urgency versus control condition ($M = –.67$, SD = 3.81 vs. $M = –3.71$, SD = 3.73; $F(1, 398) = 5.78$, $p < .001$, $d = .81$). Yet this difference was attenuated when the outcome magnitudes were made salient ($M = –1.67$, SD = 4.08 vs. $M = –3.47$, SD = 3.14;

FIGURE 3

IMPACT OF TIME FRAME AND OUTCOME SALIENCE ON TASK CHOICE (EXPERIMENT 3)

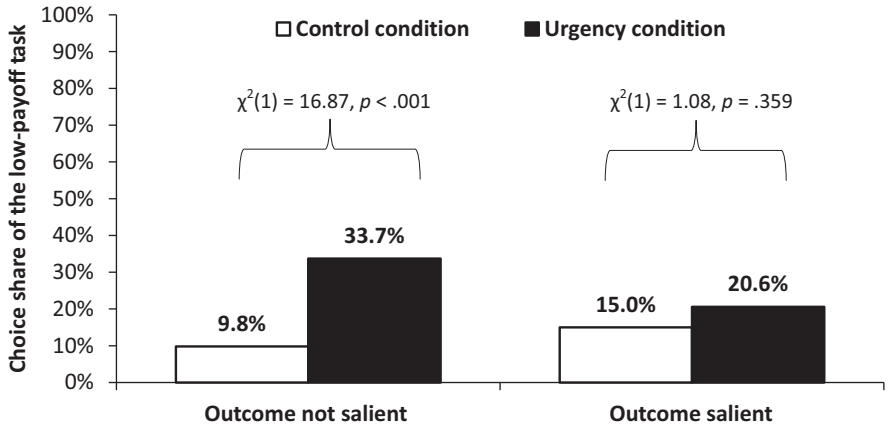
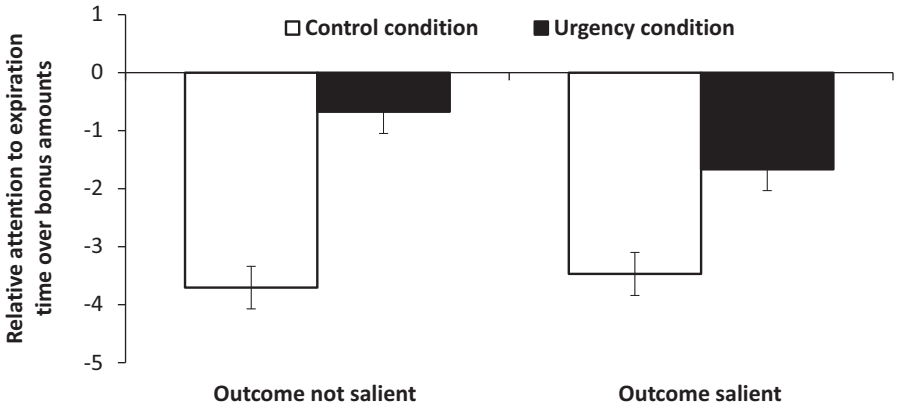


FIGURE 4

IMPACT OF TIME FRAME AND OUTCOME SALIENCE ON RELATIVE ATTENTION (EXPERIMENT 3).



Error bars: +/–1 SE

$F(1, 398) = 3.45$, $p = .001$, $d = .49$). Additionally, the relative attention paid to expiration time in the urgency condition was lower when the outcome magnitude was salient versus not ($M = –1.67$, SD = 4.08 vs. $M = –.67$, SD = 3.81; $F(1, 398) = 1.89$, $p = .059$, $d = .25$; see figure 4).

To further probe the moderating role of outcome salience in the relationship between time frame, attentional focus, and task choice, we examined the effects of attention to the task expiration time and attention to bonus amounts independently (Hayes 2013). Whereas the indirect effect of time frame on task choice was mediated through both attention to task expiration time ($\beta = .45$, SE = .14, 95% CI = [.22, .77]) and attention to bonus amounts ($\beta = .41$, SE = .11, 95% CI = [.21, .77] after we controlled for the main effects of time frame ($\beta = .94$, SE = .47, $z = 2.02$, $p = .043$) and outcome salience ($\beta = .86$, SE = .50, $z = 1.71$, $p = .088$), the direct effect of time frame on task choice was significantly moderated by outcome salience (the interaction between time frame and outcome salience: $\beta = –1.38$, SE = .63, $z = –2.20$, $p = .028$) such that the conditional direct effect of time frame was significant only in the outcome nonsalient condition ($\beta = .94$, SE = .47, $z = 2.02$, $p = .044$) but not in the outcome salient condition ($\beta = –.44$, SE = .43, $z = –1.02$, $p = .309$). These results are

consistent with our prediction that when task payoffs were highlighted at the moment of task choice, the mere urgency effect would attenuate.

Discussion. Taken together, the results of experiment 3 demonstrate that outcome salience moderates the mere urgency effect, thus lending further support to our attention-based account. Specifically, we find that shorter task completion window elicits attention, diverting focus away from the task payoffs, and in turn increased choice share of the low-payoff option when there was no additional reminder of task payoffs in the decision context. Yet this difference disappeared (i.e., the mere urgency effect was attenuated) when the magnitudes of task payoffs were experimentally made salient at the moment of task choice.

EXPERIMENT 4: PERCEIVED BUSYNESS EXACERBATES THE MERE URGENCY EFFECT

Experiments 1–3 have demonstrated the mere urgency effect and provided both mediation and moderation evidence for the proposed attention-based account. In the current experiment, we investigated when the mere urgency effect could be more pronounced. Because people who perceive themselves as busy in general tend to be tuned into the time dimension (Shah et al. 2012), chronically paying more attention to task expiration time, we predicted that people with higher level of perceived busyness would be more responsive to the urgency manipulation, choosing lower-payoff tasks more often when these tasks were merely characterized by spurious urgency.

To test this prediction, we measured workers' perceived busyness (Wilcox et al. 2016) and expected it to moderate the magnitude of the mere urgency effect, such that the mere urgency effect would be more pronounced among people perceiving themselves as busier in general. In addition, unlike our previous experiments, this experiment consisted of three rounds, each of which asked participants to choose between two tasks of varying levels of urgency and importance. This setup allowed us to explore whether the mere urgency effect would persist over time.

Methods

Four hundred two workers recruited from MTurk (226 females; $M_{age} = 36.93$; SD = 12.82) completed an online study for a fixed payment of \$.65 plus three entries into a lottery drawing for an Amazon gift card of \$20 or \$25 depending on which tasks they chose in the experiment. Upon opening the sign-up page on MTurk, workers learned that they could earn a fixed wage of 65 cents as well as chances to enter into lottery drawings. They were explicitly informed that they could participate in this study only once and that they would not be paid if they participated in the study more than once.

This experiment consisted of three rounds, each of which asked workers to choose between two typing tasks (i.e., Task Y and Task Z; Task U and Task V; Task S and Task T) that asked them to type as many of 10 randomly generated six-letter strings (e.g., "rlgows") as possible in reverse order (e.g., "swoglr") in 30 seconds. The typing tasks did not differ in terms of difficulty and length. In each round of the experiment, we operationalized task importance by varying potential payouts from the lottery and operationalized urgency through task expiration time. In the urgency conditions, workers were shown two randomizers, which always paired the task with inferior payoff (a chance to win a \$20 Amazon gift card) with the short expiration time (5 minutes) and paired the high-payoff task (a chance to win a \$25 Amazon gift card) with the long expiration time (50 minutes). In the control condition, workers were told that the two tasks differed only in their lottery outcome (a chance to win a \$20 vs. \$25 Amazon gift card), which would be randomly determined by a randomizer, and that both tasks would expire in 50 minutes. The same procedure was repeated for three rounds. The presentation order of the low- and high-payoff tasks was counterbalanced across the three rounds and no significant order effect was observed ($F < 1$).

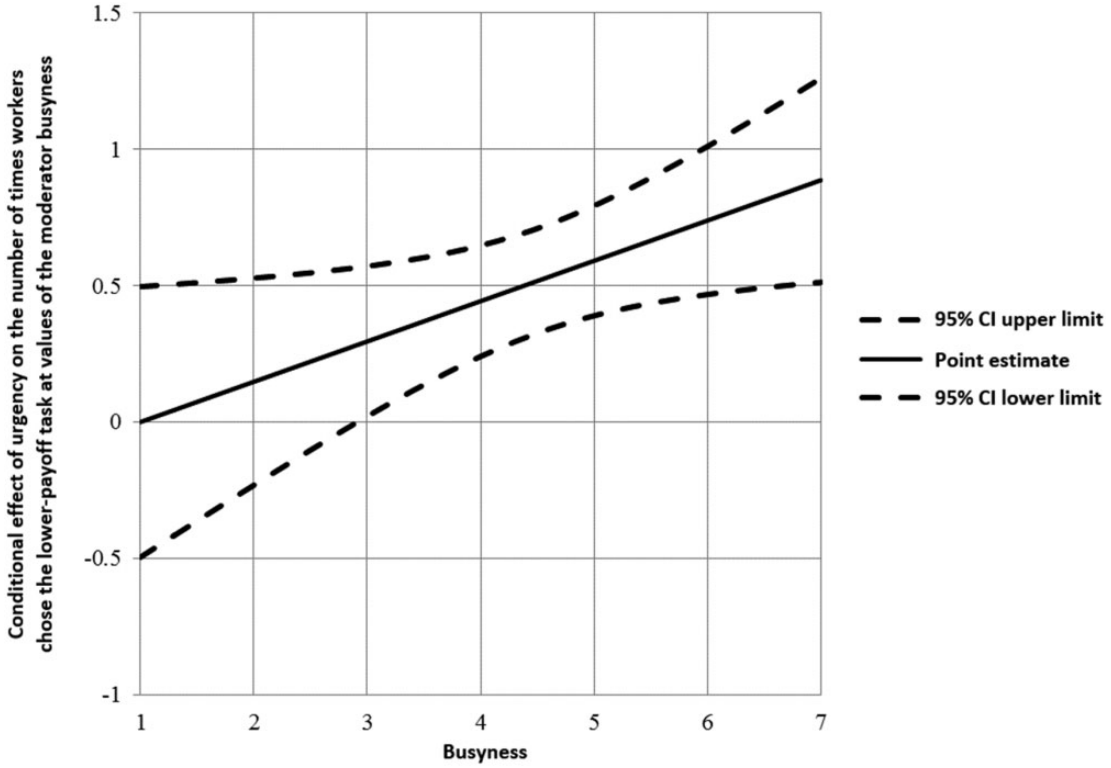
Right after completing the typing task of their choice in each round, workers would get the chance to enter a three-digit number of their choice into a lottery drawing; the computer would randomly draw a number and the MTurker who submitted that number would earn an Amazon gift card. The value of the gift card depended on each individual's choice of task in that round. Finally, workers responded to the busyness measure ("In general, how busy do you think you are?" 1 = Not busy at all; 7 = Very busy) adapted from Wilcox et al. (2016). After the HIT was completed, a fixed wage of 65 cents was deposited into each worker's account. The winners of the lotteries also received Amazon gift cards of the value specified in the chosen lotteries.

Results and Discussion

Pretests. To check the effectiveness of our urgency manipulation and importance operationalization, we recruited a separate group of participants ($N = 50$), presented them with instructions identical to those used in the first round of the urgency condition of the main experiment, and asked them to rate the urgency and importance of each of the two tasks (i.e., "To what extent do you consider Task Y/Z to be urgent (i.e., involving a short completion window)?" 1 = Not urgent at all, 7 = Very urgent; "To what extent do you consider Task Y/Z to be important (i.e., involving a high payoff)?" 1 = Not important at all; 7 = Very important). Indeed, Task Z was considered significantly more urgent ($M = 5.40$, SD = 1.99 vs. $M = 2.98$, SD = 1.95; $t(49) = 5.60$, $p < .001$; $d = .79$) and less important than

FIGURE 5

IMPACT OF TIME FRAME AND PERCEIVED BUSYNESS ON TASK CHOICE (EXPERIMENT 4)



Task Y ($M = 4.48$, SD = 1.72 vs. $M = 5.26$, SD = 1.61; $t(49) = 3.30$, $p = .002$; $d = .47$). Participants also rated task difficulty ("To what extent do you consider Task Y/Z to be difficult?" 1 = Not difficult at all; 7 = Very difficult) and no difference was found ($M = 3.90$, SD = 1.54 vs. $M = 3.66$, SD = 1.67; $t(49) = .83$, $p = .41$; $d = .12$).

Task Choice. Although the important task (i.e., the task that offered a chance to win a $25 gift card) clearly dominates the unimportant task (i.e., the task that offered a chance to win a $20 gift card), the mere urgency effect predicts that workers would be more likely to perform the low-payoff assignment when its expiration time was 5 minutes as compared to 50 minutes. Consistent with this prediction, in total, participants worked on more low-payoff tasks in the urgency condition ($M = 1.08$, SD = 1.10) than in the control condition ($M = .57$, $SD = .84$, $t(400) = 5.28$, $p < .001$).

Unpacking this effect, in the first round, 33.7% of all workers in the urgency condition chose to work on the low-payoff task (vs. 17.7% in the control condition; $\chi^2(1) = 13.39$, $p = .001$, $\varphi = .18$); by the end of the second round, 51.3% of all workers in the urgency condition chose to work on the low-payoff tasks at least once (vs. 30.5% in the control condition; $\chi^2(1) = 17.85$, $p < .001$, $\varphi = .21$); by the end of the last round, 58.8% of all workers in the urgency condition chose to work on the low-payoff tasks at least once (vs. 38.4% in the control condition; $\chi^2(1) = 16.69$, $p < .001$, $\varphi = .20$). Further, within each round, significantly more workers chose to work on the low-payoff task in the urgency condition than in the control condition (Round 1: 33.0% vs. 18.5%, $\chi^2(1) = 11.63$, $p = .001$, $\varphi = .17$; Round 2: 39.4% vs. 19.4%, $\chi^2(1) = 19.71$, $p < .001$, $\varphi = .22$; Round 3: 35.7% vs. 20.2%, $\chi^2(1) = 11.98$, $p = .001$, $\varphi = .17$).

Busyness as Moderator. To examine whether busyness moderates the magnitude of the mere urgency effect, we conducted a linear regression using the number of times that each worker worked on the lower-payoff task as the dependent variable, and using time frame (control = 0, urgency = 1), busyness, and the interaction term of time frame and busyness as the independent variables. The regression revealed a significant interaction effect (B = .15, SE = .07; $t(398) = 2.24$, $p = .026$). The main effects of time frame (B = –.15, SE = .32; $t(398) = –.47$, $p = .638$) and busyness (B = –.06, SE = .05; $t(398) = –1.30$, $p = .194$; see figure 5) were not significant.

To decompose this interaction, we further conducted a floodlight analysis to identify the range of busyness for which the simple effect of the manipulation was significant (Spiller et al. 2013). This analysis revealed a significant positive effect of urgency on the number of lower-payoff tasks completed for participants whose busyness rating was higher than 2.92 ($B_{JN} = .28$, SE = .14, $p = .05$), but not for those whose busyness rating was lower than 2.92 (see figure 5).

Discussion. Notably, in this study, the mere illusion of task expiration led the majority of workers to choose the low-payoff task at least once (58.8%, Chi-square against equal expected proportions = 6.16, $p = .01$). Further, the mere urgency effect is prevalent, robust, and persistent across all of the three trials. This finding sheds light on the real-world circumstances where one might repeatedly ignore what is important (e.g., postponing a medical checkup, which could potentially save our lives by diagnosing cancer at an early, curable stage) to pursue what is urgent (e.g., working on conference submissions whose deadlines are approaching soon, or rushing to the store whose sale will end in hours), instead of learning from past suboptimal decisions over time.

In addition, the results of experiment 4 show that the mere urgency effect was more pronounced among workers who perceived themselves as busy in general. These findings provide further support for the proposed attention-based account. That is, people who are high in perceived busyness tend to be tuned into the time dimension (Shah et al. 2012), chronically paying more attention to task expiration time, and therefore are more susceptible to the impact of time frames. More specifically, in this case, professional contractual workers chose low-payoff assignments (and therefore opted for a lottery prize that was $5 less, a difference equivalent to 7.69 times their full wage specified in the current contract) more often and as a consequence received less reward for the same workload, merely due to spurious urgency.

GENERAL DISCUSSION

Taken together, results from five experiments provide compelling support for the mere urgency effect, a tendency to pursue urgency over importance even when potential normative reasons are controlled for. Employing a simplified and flexible paradigm, we demonstrate that people are more likely to perform unimportant tasks over important tasks that are clearly dominating in terms of payoffs, when the unimportant tasks are merely characterized by spurious urgency. Our findings are robust in real choices made by college students and contractual workers and across various ways of operationalizing importance and urgency.

We uncover the underlying mechanism through which people make tradeoffs between urgent and important tasks: the restricted time frame embedded in urgent tasks elicits attention, diverting focus away from the magnitudes of task outcomes, and thereby leads people to exhibit the mere urgency effect. In other words, the mere urgency effect arises from the relative difference of attention between time and outcome. Consistently, the relative attentional focus captured through both indirect thought listing procedure (experiment 2A) and direct self-reported measures (experiment 2B) mediated the mere urgency effect. Further evidence for the attention-based account comes from experiment 3, which showed that experimentally shifting attention to outcome attenuates the mere urgency effect. By contrast, experiment 4 identifies a condition showing that the mere urgency effect was more pronounced among people who perceive themselves as busy in general. This occurs because busy people tend to be more tuned into the time dimension, thus chronically paying more attention to task expiration time. In addition, we explored the potential role of general attentional constraints that are not specific to outcome or time (see the web appendix). The results revealed that decreased attentional capacity due to the imposition of cognitive load could impair one's ability to differentiate between the tasks at hand, resulting in indifference toward the urgent and important tasks.

Open Questions and Future Research Directions

The current work opens up several avenues for further research. First, people behave as if pursuing urgent tasks has its own appeal, beyond their objective consequences: the heightened attention evoked by a restricted time frame is potent enough to divert people's focus away from task outcomes, consequently increasing their likelihood of pursuing tasks that are transparently inferior in terms of objective value. We speculated that task urgency activates an urge to resolve the disutility (e.g., discomfort or distraction) resulting from the involuntary attentional focus on time frames, and task completion satisfies this urge. Future investigations on the positive versus negative affective consequences of urgency could yield important insights.

Second, choice restriction can result from both time scarcity (i.e., the immediate time frame of an option) and quantity scarcity (i.e., the limited availability of an option) (Botti et al. 2008). Although the current research focuses only on time scarcity, we expect that a similar restriction effect may emerge for quantity scarcity through the same attention process. That is, the manipulation of quantity scarcity might also elicit greater attention to the scarcity of quantity and in turn lead people to pursue scarce, low-payoff options over nonscarce, high-payoff options. Future research could examine whether people exhibit a similar tendency when facing quantity scarcity. Also of note is that we have defined task importance specifically in association with outcome magnitudes in this research. Yet the term *importance* itself could take on a broader meaning. For example, consumers may perceive an urgent task that requires immediate responsiveness to be more important. Likewise,

an important task that is characterized by big outcome magnitudes may be considered as carrying more urgency. Future research could further explore the potential nuanced interplay between consumers' subjective feelings of importance and urgency, as well as other drivers of importance and urgency perceptions beyond what are documented in the current work—that is, outcome magnitudes and completion windows, respectively.

Further, the current research investigates the effect of urgency on task choice, and has demonstrated that people are more likely to choose unimportant tasks (i.e., tasks with objectively lower payoffs) over important tasks (i.e., tasks with objectively better payoffs) when the unimportant tasks are characterized merely by spurious urgency (e.g., an illusion of expiration). Will spurious urgency continue to operate and influence other downstream consequences (e.g., task performance, persistence) beyond task choice? We believe this question is important and worthy of future exploration. Our analyses of the performance data yield mixed preliminary evidence for the possibility that spurious urgency might affect task performance. As shown in the web appendix, whereas the urgency manipulation enhanced performance in experiments 2B and 4, it decreased performance in experiment 3, and had no impact on performance in experiment 2A, suggesting that there exist potential moderators. One moderator, we suspect, is the length of the task. When the task is shorter, the effect of urgency on task performance might be more pronounced.

Theoretical and Practical Implications

The present research contributes to the recent theoretical developments on how choice restrictions impact judgment and decision making (Botti et al. 2008; Cannon, Goldsmith, and Roux forthcoming; Hamilton et al. 2018; Johar, Meng, and Wilcox 2018; Kristofferson et al. 2016; Mehta and Zhu 2016; Roux, Goldsmith, and Bonezzi 2015; Zhu and Ratner 2015). While prior research on commodity theory has made considerable progress in understanding how scarcity of an option enhances its perceived value and demand (Brehm 1966; Brock 1968; Brock and Brannon 1992; Worchel et al. 1975), our research documents a novel restriction effect that holds above and beyond the extant scarcity effects by showing that people still pursue a restricted option even when it is unequivocally dominated by a nonrestricted alternative. Our results support the emerging view that restrictions influence preference by activating an arousing state and thereby systematically changing the allocation of attentional resources (Cialdini 2009; Shah et al. 2012; Zhu and Ratner 2015), rather than by increasing cognitive processing on the restricted options per se. Our empirical findings are also in a broad sense consistent with fuzzy trace theory (Brainerd and Reyna 1990; Rivers, Reyna, and Mills 2008), which suggests that restrictions might lead people to encode choice alternatives based on "gist representations" that "often incorporate emotion including valence, arousal," as opposed to "deliberation and precise analysis" of verbatim details of the information provided (Rivers et al. 2008, 107).

The present research also contributes to the prior work on the interplay between time pressure and information processing. Previous research on time pressure has mainly focused on situations where consumers do not have a sufficient amount of time to make a decision. The present research adds to this line of research by exploring spurious task urgency—that is, situations where consumers always have a sufficient amount of time to make a decision and to finish a task. Our attention-based account also provides a plausible explanation for some of the prior findings uncovered by the eye-tracking methodology, such as the phenomenon that the search process under time pressure is random with respect to value, and the observation that options with higher value are not more likely to be noticed (Pieters and Warlop 1999; Reutskaja et al. 2011). In addition, the present findings are relevant as well to the existing literature on procrastination. Prior work suggests that people tend to procrastinate on tasks that involve high short-run costs (O'Donoghue and Rabin 2001), nonimmediate rewards (Frederick et al. 2002; McClure et al. 2004), or goals that are distant from completion (Kivetz et al. 2006). Our research indicates that procrastination may persist even when such factors are controlled for, especially in situations where people are faced with competing tasks that are characterized by shorter time frames or even a mere illusion of expiration.

Finally, the mere urgency effect demonstrated in this research has significant practical implications for individual decision makers, managers, and policy makers. Our findings help individuals understand when and why suboptimal consequences might occur in daily tradeoff decisions between urgency and importance. Once we appreciate that attention is drawn to urgency, we see how this innate propensity can lead to suboptimal consequences beyond what is documented in the current research (i.e., earning fewer chocolates, making less money, and winning a lower-value gift card). We may sacrifice health, family, and other important aspects of our lives in order to focus on less significant activities with shorter completion windows, especially when we seem to be working more and perceive ourselves to be busier. Our findings also offer clear implications for managers and policy makers who seek to increase the long-term well-being and productivity of their employees and our society. Our research suggests that interventions that shift people's attention away from the completion windows to the final outcomes of everyday tasks should be particularly effective at attenuating the mere urgency effect, leading us to invest more time and effort in activities that matter most to our well-being as well as the long-run welfare of our institutions, communities, and society as a whole.

DATA COLLECTION INFORMATION

The second author supervised the collection of data for experiment 1 by research assistants at the University of Florida during fall 2015. The first author supervised the collection of data for experiments 2–4 by research assistants at Johns Hopkins University through Mechanical Turk during fall 2015 (experiment 3), spring 2016 (experiments 2B), and spring 2017 (experiments 2A and 4). All data were analyzed jointly by the first and the second authors.

APPENDIX A: SAMPLE RANDOMIZATION PROCEDURE (EXPERIMENT 1—CONTROL CONDITION)

Please click "CONTINUE" to let the system randomly decide the bonus level of each task.

System processing, please wait.

The system has randomly assigned the bonus level for Task A and Task B.

- You can earn 6 points for each review you write for Task A.
- You can earn 10 points for each review you write for Task B.

Both tasks will take exactly 5 minutes to complete and expire in 24 hours. And they do not differ in terms of difficulty.

APPENDIX B: SAMPLE RANDOMIZATION PROCEDURE (EXPERIMENT 1—URGENCY CONDITION)

Please click "CONTINUE" to let the system randomly decide the bonus level of each task.

System processing, please wait.

The system has randomly assigned the bonus level for Task A and Task B.

- You can earn 6 points for each review you write for Task A.
- You can earn 10 points for each review you write for Task B.

Please click "CONTINUE" to let the system randomly assign the availability of the two tasks.

System processing, please wait.

The system has completed the random assignment for task availability.

- Task A will expire in 10 minutes.
- Task B will expire in 24 hours.

Both tasks will take exactly 5 minutes to complete and they do not differ in terms of difficulty.

APPENDIX C: SAMPLE RANDOMIZATION PROCEDURE (EXPERIMENT 2 A—CONTROL CONDITION)

Please click "CONTINUE" to let the system randomly decide the bonus level of each task.

System processing, please wait.

The system has randomly assigned the bonus level for Task A and Task B.

- You can earn a bonus of 12 cents by completing Task A.
- You can earn a bonus of 16 cents by completing Task B.

Both tasks will take exactly 3 minutes to complete and expire in 50 minutes. And they do not differ in terms of difficulty.

APPENDIX D: SAMPLE RANDOMIZATION PROCEDURE (EXPERIMENT 2 A—URGENCY CONDITION)

Please click "CONTINUE" to let the system randomly decide the bonus level of each task and the availability of the two tasks.

System processing, please wait.

The system has randomly assigned the bonus level for Task A and Task B.

- You can earn a bonus of 12 cents by completing Task A.
- You can earn a bonus of 16 cents by completing Task B.

The system has completed the random assignment for task availability.

- Task A will expire in 5 minutes.
- Task B will expire in 50 minutes.

Both tasks will take exactly 3 minutes to complete and they do not differ in terms of difficulty.

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