



# How backup plans can harm goal pursuit: The unexpected downside of being prepared for failure



Jihae Shin<sup>a,\*</sup>, Katherine L. Milkman<sup>b</sup>

<sup>a</sup> University of Wisconsin-Madison, 975 University Ave, 5172 Grainger Hall, Madison, WI 53706, USA

<sup>b</sup> The Wharton School, University of Pennsylvania, 3730 Walnut Street, 566 Jon M. Huntsman Hall, Philadelphia, PA 19104, USA

## ARTICLE INFO

### Article history:

Received 9 December 2014

Revised 12 January 2016

Accepted 10 April 2016

### Keywords:

Goals

Plan-making

Backup plan

Motivation

Failure

## ABSTRACT

When pursuing a goal, making a backup plan has many benefits, including reducing the psychological discomfort associated with uncertainty. However, we suggest that making a backup plan can also have negative effects. Specifically, we propose that the mere act of thinking through a backup plan can reduce performance on your primary goal by decreasing your desire for goal achievement. In three experimental studies, we find that individuals randomly assigned to think through a backup plan subsequently performed worse on their primary goal (Studies 1–3). We further show that this effect is mediated by study participants' decreased desire to attain their primary goal (Study 3). This research provides a fresh perspective on plan-making, highlighting an important yet previously unexplored negative consequence of formulating plans.

© 2016 Elsevier Inc. All rights reserved.

## 1. Introduction

The attainment of many important outcomes in organizations is uncertain *ex ante*. For example, a product developer is unsure whether her new product will eventually be brought to market, an entrepreneur is unsure whether her pitch will ultimately be selected for venture capital funding, and a doctoral student does not know whether she will secure a faculty position. When facing uncertainty regarding goal attainment, some people make a backup plan (Lynch, Netemeyer, Spiller, & Zammit, 2010). The product developer might plan to take her product to a different company in case she fails to gain support for its launch at her current company, the entrepreneur might plan to go back to her old job in case she fails to secure venture capital funding for her new business, and the doctoral student might make a backup plan of taking an industry job in case she fails to receive an academic job offer. Ultimately, these backup plans are structured to help people continue to pursue their high-level, overarching goals even after they fail to achieve their primary goal, albeit in a less preferable fashion.

In this paper, we define 'a backup plan' as 'a plan for achieving a new goal in case a person's primary goal proves unattainable such that this plan still leads to the achievement of the same superordinate goal'. Two critical parts of this definition are worth

emphasizing. First, a backup plan is designed to achieve a new goal that is distinct from the original, primary goal. For example, for the doctoral student mentioned above, obtaining an industry job is a new and different goal from her primary goal of securing an academic job offer. Second, the primary goal and the backup plan both facilitate fulfilling the same higher-order, superordinate goal. For example, obtaining an industry job and securing an academic job offer both achieve the superordinate goal of procuring paid employment.

Making a backup plan is common in both organizations and in everyday life. In a survey of 120 adults in a U.S. train station, after identifying a goal they were striving to achieve, 48% indicated that they had made a backup plan in case they failed to achieve that goal. For example, one person's primary goal was "to be promoted" and her corresponding backup plan was "to change jobs." The higher-order goal that the backup plan helps the respondent to achieve is to get a better job.

Previous research provides insight into why, when facing uncertainty regarding primary goal achievement, the formation of a backup plan has its merits. Research on uncertainty reduction posits that uncertainty is so inherently uncomfortable that we are strongly motivated to reduce it, particularly when it comes to outcomes we consider important (Berger & Calabrese, 1975; Gneezy, List, & Wu, 2006; Hogg & Terry, 2000; March, 1996). Making a backup plan is one action you can pursue that reduces perceived uncertainty about the future. Although the prospect of possible goal failure is extremely daunting (Heath, Larrick, & Wu,

\* Corresponding author.

E-mail addresses: [jshin@bus.wisc.edu](mailto:jshin@bus.wisc.edu) (J. Shin), [kmilkman@wharton.upenn.edu](mailto:kmilkman@wharton.upenn.edu) (K.L. Milkman).

1999), it may become less so once a backup plan is in place that can be readily implemented in case of a disappointment. In short, the future after a goal failure becomes less uncertain after a backup plan has been formulated. This means that making a backup plan may alleviate the psychological discomfort linked to uncertainty and help us feel better about the future (Rottenstreich & Shu, 2004). Of course, backup plans not only have the potential to alleviate psychological discomfort, but also can have real, practical value when we fail to achieve a primary goal. That is, having a backup plan can reduce the time spent suffering through the negative consequences of goal failure. When you have made a backup plan, you can quickly implement the backup plan when goal failure arises rather than dwelling on the failure for an extended period of time (Soman & Cheema, 2004).

While making a backup plan may provide psychological (and in some cases, practical) benefits in the face of uncertainty, we propose that this value may come at a higher than previously understood cost. We posit that the mere act of thinking through a backup plan—even when it takes no time or energy away from primary goal pursuit—may reduce performance on primary goals and thus lower the probability of goal attainment. Little research has examined the performance consequences of making a backup plan, let alone its possible negative effects on goal performance. The focus of this paper is to examine whether making a backup plan, and thereby gaining a psychological “insurance policy” against high outcome uncertainty, comes at the cost of reduced performance on your primary goal. It is important to emphasize that we will simply examine the costs of *thinking through* a backup plan and not *taking steps to enact* a backup plan (which would take time and energy away from primary goal pursuit). We hypothesize and demonstrate that merely thinking through a backup plan can reduce primary goal performance (Hypothesis 1) by reducing the desire for goal achievement (Hypothesis 2).

This research contributes to the literatures on plan-making, goal performance, and multiple attainment means, and it also adds to research providing practical insights on how to improve decision making (Johnson et al., 2012; Ly, Mazar, Zhao, & Soman, 2013; Milkman, Chugh, & Bazerman, 2009). While existing research on plan-making has focused primarily on its positive effects (Gollwitzer, 1999; Rogers, Milkman, John, & Norton, *in press*), we provide a more balanced perspective by highlighting a previously unexplored negative effect of a specific kind of plan-making – making backup plans. Although a large literature exists on the antecedents of goal performance, previous research in this area has focused largely on how the characteristics of a goal (i.e., goal difficulty or goal specificity) affect goal performance (Locke, Chah, Harrison, & Lustgarten, 1989; Locke & Latham, 1990). Our research examines a factor beyond a goal’s characteristics that can also affect goal performance and the chances of goal success. We illuminate how making a backup plan regarding goal failure affects goal performance. Finally, our research complements and extends an emerging literature on multiple attainment means. While past research has found that having multiple different pathways to attain a primary goal can help primary goal pursuit by enhancing primary goal commitment and motivation (Huang & Zhang, 2013; Kruglanski, Pierro, & Sheveland, 2011), we demonstrate that merely thinking through a backup plan for achieving a new goal in case of primary goal failure can actually harm primary goal pursuit by reducing primary goal desire and performance. Practically, this research has the potential to help individuals make better-informed decisions by highlighting that although making a backup plan has well-known benefits, it also has costs that should be weighed carefully.

The remainder of this paper proceeds as follows. We begin by reviewing the relevant literatures on plan-making and multiple

attainment means. Next, we present our theory of *why* and *how* making a backup plan may reduce primary goal performance. Then we turn to empirical tests of our hypotheses across three studies. In Study 1, a laboratory experiment, we test the main effect of whether thinking through a backup plan leads to lower primary goal performance. In Studies 2a and 2b, both laboratory experiments, we replicate the main effect from Study 1 and test alternative explanations for our observed effect. We rule out the possibility that our backup plan manipulation decreases superordinate goal value and subsequently, primary goal performance (Study 2a) as well as the possibility that our backup plan manipulation induces fatigue, thereby reducing primary goal performance (Study 2b). Finally, in Study 3, we test our proposed mediator of a backup plan’s harmful effects on primary goal performance—reduced goal desire. Specifically, we examine whether making a backup plan reduces primary goal performance by weakening goal desire. Across these studies, we find that merely thinking through a backup plan can indeed lead to lower primary goal performance and that this effect is partially mediated by the lower desire for goal success.

## 2. Literature review

Existing research on plan-making has primarily highlighted the benefits of plan-making (e.g., see Gollwitzer (1999) and Rogers et al. (*in press*), for reviews). Plan-making, or the act of specifying when, where, and how you will achieve a given objective, has been found to increase goal attainment in such diverse settings as exercising (Milne, Orbell, & Sheeran, 2002), eating fruit (Armitage, 2007), quitting smoking (Armitage & Arden, 2008), voting (Nickerson & Rogers, 2010), and receiving flu shots and colonoscopies (Milkman, Beshears, Choi, Laibson, & Madrian, 2011; Milkman, Beshears, Choi, Laibson, & Madrian, 2013). By showing that planning detailed action steps makes it more likely that people will follow through on their intentions, the existing research has primarily focused on the beneficial effects of plan-making on goal attainment. In our research, we propose that there may be a specific kind of plan-making—making backup plans—that actually has a harmful effect on goal pursuit. We seek to provide a more balanced perspective on the effects of plan-making by highlighting one of its potential downsides.

In examining the effects of making a backup plan, we build on an emerging literature on the effects of having multiple means for reaching a goal. Kruglanski et al. (2011) found that thinking about additional strategies for achieving a given goal increased commitment to that goal. Additionally, Huang and Zhang (2013) found that having additional means available for achieving a given goal can enhance motivation for that goal, especially in the initial stage of goal pursuit. According to these scholars, perceiving that multiple means are available for achieving a given goal can have positive effects on goal commitment and motivation because it increases a goal’s perceived attainability (i.e., individuals think it is more likely that they will be able to achieve the goal when they envision more ways to attain it).

When individuals make a backup plan, they think about a different course of action they could take in case they fail to achieve their primary goal. Making a backup plan (the focus of this paper) is distinct from having an additional means for achieving a given primary goal (which past research has explored) in at least two important ways. First, an additional means for achieving a given primary goal is a different method for achieving that *same* primary goal (e.g., exercising *and* eating less to achieve the same primary goal of losing weight before starting a new job). By contrast, a backup plan involves a different method for achieving a *new*,

different goal, which is prepared for execution in case of failure to attain a given primary goal (e.g., “If I don’t lose weight before starting my new job, I’ll buy a nice new wardrobe, which will help me achieve a new goal of *looking slimmer*”). Furthermore, while an additional means for achieving a given primary goal can be implemented at the same time as the original means (e.g., “I can diet *and/or* exercise in the hopes of losing weight before starting a new job”), a backup plan is designed to be implemented *only after* failing to attain a given primary goal (e.g., “If I fail to lose weight before starting my new job, I will then implement my backup plan of purchasing a nice new wardrobe”).

While past research on multiple attainment means has focused on the effects of contemplating additional means for achieving a given primary goal (Huang & Zhang, 2013; Kruglanski et al., 2011), it has not yet examined the effects of making a backup plan in case of primary goal failure. The focus of our paper is to examine how making a backup plan for a new, different goal, designed to be implemented in the future if an individual fails to achieve her primary goal, affects primary goal pursuit. Below, we explain in more detail the conceptual and empirical distinctions between making a backup plan (our focus) and having an additional means of attaining a given primary goal (the focus of past research, Huang & Zhang, 2013; Kruglanski et al., 2011).

First, as described above, making a backup plan is distinct from having an additional means for achieving a given primary goal because a backup plan offers a means for achieving a *new, different* goal. For example, consider a management doctoral student who hopes to obtain an academic job: her primary goal is “getting an academic job,” and her primary means of attainment is “applying to openings in organizational behavior departments.” An additional means of attaining her primary goal would be to “apply to entrepreneurship departments,” which would help her achieve the same primary goal of “getting an academic job.” However, “applying to work at Google” would constitute a backup plan, as it would help the student pursue a new, different goal of “getting an industry job,” rather than the primary goal of getting an academic position. The new goal may be less preferable to the student than the primary goal, but it would still help her pursue the same superordinate goal of “procuring paid employment.” Past research on multiple attainment means has examined the effects of contemplating additional means of attaining a primary goal and has found that doing so can increase commitment and motivation for the primary goal (Huang & Zhang, 2013; Kruglanski et al., 2011). However, past research has not examined the effects of making a backup plan designed to achieve a new, different goal on primary goal pursuit. In our research, we propose and test the hypothesis that making a backup plan designed to help you achieve a new, different goal can actually have negative effects on primary goal motivation and performance. By illuminating the possibility that thinking about different means of goal attainment can have negative (rather than positive) effects on primary goal pursuit (when the different means contemplated is a backup plan), our research enriches and complements the existing literature on multiple attainment means.

A second important distinction between making a backup plan and having an additional means for achieving a given primary goal is that a backup plan is designed to be implemented *only after* primary goal pursuit has concluded and failed. Returning to our example of a doctoral student seeking an academic job, her additional means of attaining her primary goal (namely “applying to entrepreneurship departments”) can be implemented at the same time as her original plan of “applying to organizational behavior departments.” However, her backup plan of “applying to work at Google” would help her pursue a potential future goal of “getting an industry job.” Thus, this plan would be implemented in the

future, if and only if she fails to get an academic job. While past research on multiple attainment means has shown that having an additional means of goal attainment that can be implemented during primary goal pursuit can affect primary goal outcomes (Huang & Zhang, 2013; Kruglanski et al., 2011), past research has not examined whether or how making a backup plan solely for execution in the future, in the case of primary goal failure, affects primary goal outcomes. In our research, we propose and test the idea that making a backup plan designed to be implemented *only after* primary goal pursuit is over can also affect primary goal motivation and performance. By exploring whether and how primary goal pursuit can be affected by contemplating a strategy for potential future execution (in the form of a backup plan), and not just by having an additional, immediately implementable means of attaining a primary goal, our research seeks to extend the existing literature on multiple attainment means.

In sum, our paper builds on, complements, and extends the existing research on plan-making and multiple attainment means by systematically examining the potential negative effects of making a backup plan on primary goal pursuit. We next turn to a discussion of why we predict making a backup plan may harm primary goal motivation and performance.

### 3. Backup plans and goal performance

In this paper, we examine *whether* and *how* making a backup plan reduces primary goal performance. Past research has divided the drivers of performance into two key factors: the “will do” factor and the “can do” factor (Schmitt, Cortina, Ingerick, & Wiechmann, 2003). The “will do” factor captures how motivated an individual is to perform, while the “can do” factor captures how able an individual is to perform. We propose that making a backup plan reduces performance by affecting the “will do” factor. It has been found that waning motivation has huge negative implications for goal achievement, particularly in domains where effort is critical to success (see Diefendorff and Chandler (2011) and Kanfer, Chen, and Pritchard (2008) for reviews).

We propose that making a backup plan may reduce primary goal performance by dampening people’s desire to achieve their goal. Existing research has shown that the anticipatory emotions attached to goal failure are important drivers of goal desire (Bagozzi, Dholakia, & Basuroy, 2003). That is, the greater the negative emotions you anticipate from goal failure, the more you will want to achieve a goal. Making a backup plan may be one behavior that weakens the intensity of those negative emotions associated with goal failure, lessening your desire to achieve a given goal. As an example, imagine you have a goal you would like to achieve. Without a backup plan, you may anticipate a lot of negative emotions attached to goal failure – even intense pain in some cases – and this may fuel a strong desire to achieve your goal. On the other hand, after you have made a backup plan, you may no longer anticipate experiencing such negative emotions after goal failure (i.e., you may think: ‘I’ll feel okay even if I fail, because I have made a backup plan’), and as a result, you may no longer feel a strong desire to achieve your goal. In other words, by making a backup plan, you are effectively constructing an emotional safety net, which may dampen your goal desire. This dampened goal desire should then reduce the effort you put forth towards your goal and thus, your performance in the goal.

To summarize, we hypothesize that individuals who have made a backup plan will desire to achieve their primary goal less intensely than those who have not, and this will lead them to exhibit lower performance on goal-relevant tasks, ultimately lowering their probability of success in their primary goal.

**Hypothesis 1.** Making a backup plan reduces performance on goal-related pursuits.

**Hypothesis 2.** Making a backup plan reduces performance on goal-related pursuits by dampening the desire to achieve the goal.

#### 4. Overview of the present research

We test these hypotheses across four laboratory experiments. Across the studies, we consistently find that making a backup plan reduces performance on goal-related pursuits, and we further show that this effect is partially mediated by a dampened desire for goal achievement.

#### 5. Study 1

In Study 1, we test for the hypothesized negative effect of thinking through a backup plan with a simple, two-condition laboratory experiment.

##### 5.1. Participants

One hundred and sixty participants at a large Midwestern university in the United States were recruited to participate in a one-hour laboratory session during which they completed a series of research studies. They were paid \$10 for their participation. Our study took approximately 10 minutes of their time.

##### 5.2. Procedures

Participants in our study were randomly assigned to one of two experimental conditions: a control condition or a backup plan condition. All of the participants were given the same task: a sentence-unscrambling task (see Appendix A for complete study stimuli). They were told that if they achieved high performance on this task, they would receive a “free snack” (an energy bar) at the end of the experiment. Thus, all participants were given the primary goal of achieving high performance and earning the free snack.

Participants in the control condition did not receive any additional instructions before proceeding to the sentence-unscrambling task. Participants in the backup plan condition were prompted to formulate a backup plan before proceeding to the task. They were reminded that they might not earn the “free snack” in this study and were told, “In case you don’t get the ‘free snack’ from this study, think of different ways you can find free food on campus.” In other words, they were asked to construct a backup plan—to think about what they could do if they failed to achieve their primary goal (i.e., earning the “free snack” in this study) in order to still pursue their superordinate goal (i.e., obtaining free food).

After the sentence-unscrambling task, all participants were asked two questions to confirm that thinking through a backup plan did not change their perceived value of primary goal achievement. Specifically, we measured the perceived value of primary goal achievement by asking participants the extent to which they agreed with the following two statements on a 7-point scale (1–7 anchored on “strongly disagree” and “strongly agree”): “I felt that getting the ‘free snack’ in this study was very important” and “I felt that getting the ‘free snack’ in this study was very valuable.”

##### 5.3. Results and discussion

Consistent with [Hypothesis 1](#), and as illustrated in [Fig. 1](#), we find that participants in the backup plan condition performed

significantly worse on the sentence-unscrambling task ( $M_{\text{sentences\_unscrambled}} = 4.21$ ,  $SD = .94$ ) than participants in the control condition ( $M_{\text{sentences\_unscrambled}} = 4.48$ ,  $SD = .75$ ;  $t(152) = 2.01$ ,  $p < .05$ ). Further, we find that participants in the backup plan condition did not express significantly different views from participants in the control condition when asked about the importance of their primary goal ( $M_{\text{backup\_plan}} = 3.99$ ,  $M_{\text{pure\_control}} = 4.14$ ,  $p = .57$ ) or its value ( $M_{\text{backup\_plan}} = 4.02$ ,  $M_{\text{pure\_control}} = 4.16$ ,  $p = .61$ ).

#### 6. Study 2

In Study 1, we provided data that confirmed our first hypothesis. In Study 2, we seek to replicate our finding from Study 1 with different stimuli and rule out alternative explanations for our observed effect. Namely, we seek to rule out the possibility that our backup plan manipulation reduces primary goal performance by reducing the perceived value of the superordinate goal (Study 2a) or by inducing fatigue (Study 2b).

#### 7. Study 2a

In Study 2a, the alternative explanation that we seek to rule out is that our main effect (lower performance in the backup plan condition) is not driven by backup plan formation itself, but instead by changes in superordinate goal value ([Hollenbeck & Williams, 1987](#); [Johnson, Häubl, & Keinan, 2007](#)) caused by our backup plan manipulation (i.e., in Study 1, after introspecting about easy ways to find free food, participants might no longer view obtaining free food as a valuable goal).

##### 7.1. Participants

One hundred and nineteen U.S. participants were recruited over the Internet through Amazon’s Mechanical Turk to participate in a short online research study. These participants were paid \$0.51 for completing a survey that they were told would take about 10 minutes of their time.

##### 7.2. Procedure

Participants were randomly assigned to one of three experimental conditions: the pure control condition, the backup plan condition, or the goal value control condition. All of the participants were given the same task: a sentence-unscrambling task (see Appendix B for complete study stimuli). They were told that if they achieved high performance on this task, they would get a “free pass” to skip a subsequent five-minute study, meaning they would be able to finish the experiment early while earning the same payment. Thus, all participants were given the primary goal of achieving high performance and earning this free pass.

Participants in the pure control condition did not receive any additional instructions before proceeding to the sentence-unscrambling task. Participants in the backup plan condition were prompted to formulate a backup plan before proceeding to the task. Specifically, they were reminded that they might not earn the free pass in this study and were told, “In case you don’t get the ‘free pass’, think about different ways you could save 5 minutes in the next 24 hours.” In other words, the participants were asked to construct a backup plan—to think about what they could do if they failed to achieve their primary goal (i.e., earning the free pass in this study) to still pursue their superordinate goal (i.e., saving five minutes). Participants in the goal value control condition were simply informed of easy ways they could save five minutes after the experiment but they were not prompted to think through a backup plan. The goal value control condition was devised to rule



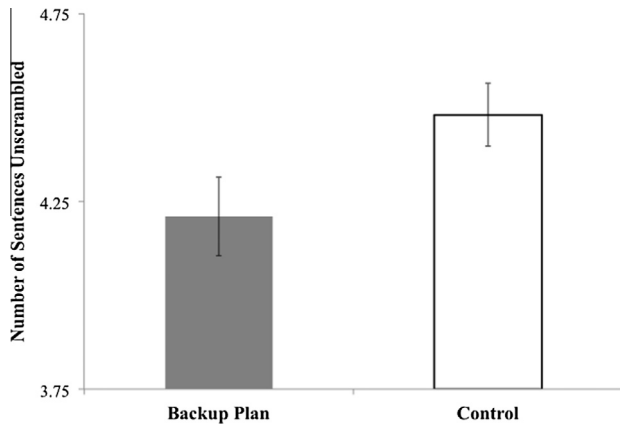


Fig. 1. Study 1 results (error bars depict  $\pm 1$  standard error).

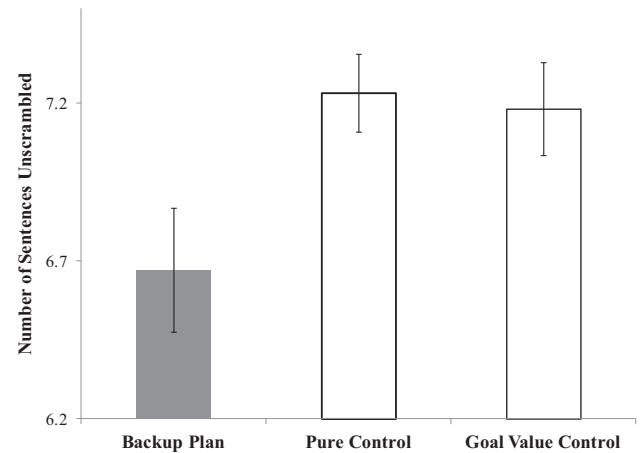


Fig. 2. Study 2a results (error bars depict  $\pm 1$  standard error).

out the possibility that if goal performance was reduced in the backup plan condition, it was merely because being reminded of easy ways to save five minutes made participants view the superordinate goal of “saving five minutes” as less valuable (Hollenbeck & Williams, 1987).

### 7.3. Results and discussion

Consistent with Hypothesis 1, we find that participants in the backup plan condition performed significantly worse on the sentence-unscrambling task ( $M_{\text{sentences\_unscrambled}} = 6.67$ ,  $SD = 1.17$ ) than participants in the pure control condition ( $M_{\text{sentences\_unscrambled}} = 7.23$ ,  $SD = .81$ ,  $t(61) = 2.45$ ,  $p < .05$ ) and participants in the goal value control condition ( $M_{\text{sentences\_unscrambled}} = 7.18$ ,  $SD = .93$ ,  $t(67) = 2.08$ ,  $p < .05$ ; see Fig. 2). These results replicate the finding from Study 1 that merely thinking through a backup plan can causally harm goal performance and the chances of goal success—in this case, successfully earning a “free pass” to skip the second part of our study. Furthermore, by showing that performance in the backup plan condition was significantly lower than that in the goal value control condition; these results demonstrate that our backup plan effect is not due to a reduction in superordinate goal value caused by recognizing the ease of achieving the superordinate goal.

## 8. Study 2b

In Study 2b, we seek to replicate the findings of Study 1 and Study 2a while ruling out yet another potential alternative explanation for our main effect: namely, that our main effect (lower performance in the backup plan condition) is not driven by backup plan formation itself, but instead by cognitive fatigue (Van der Linden, Frese, & Meijman, 2003) caused by our backup plan manipulation (i.e., from brainstorming about different ways to pursue the superordinate goal).

### 8.1. Participants

Three hundred and sixty-eight U.S. participants were recruited over the Internet through Amazon’s Mechanical Turk to participate in a short online research study. These participants were paid \$0.51 for completing a survey that they were told would take about 10 minutes of their time.

### 8.2. Procedure

Participants were randomly assigned to one of three experimental conditions: the pure control condition, the backup plan

condition, or the brainstorming control condition. All of the participants were given the same task: a sentence-unscrambling task (see Appendix C for complete study stimuli). They were told that if they achieved high performance on this task, they would get a “free pass” to skip a subsequent five-minute study, meaning they would be able to finish the experiment early while earning the same payment. Thus, all participants were given the primary goal of achieving high performance and earning this free pass.

Participants in the pure control condition did not receive any additional instructions before proceeding to the sentence-unscrambling task. Participants in the backup plan condition were prompted to formulate a backup plan before proceeding to the task. They were reminded that they might not earn the free pass in this study and were told that “In case you don’t get the ‘free pass’, think about different ways you could save 5 minutes in the next 24 hours.” In other words, participants were asked to construct a backup plan—to think about what they could do in case they failed to achieve their primary goal (i.e., earning the “free pass” in this study), to still pursue their superordinate goal (i.e., saving five minutes). Participants in the brainstorming control condition were asked to engage in brainstorming before beginning the task; they were asked to list what they might do with an extra five minutes of their time but they were not prompted to think through a backup plan. The brainstorming control condition was devised to rule out the possibility that if goal performance was reduced in the backup plan condition, it was merely because participants were worn out by engaging in brainstorming before working on the sentence-unscrambling task (Van der Linden et al., 2003).

### 8.3. Pretest

To test that our manipulations would not induce changes in participants’ perceived difficulty of earning a “free pass” or perceived likelihood of earning a “free pass,” or changes in their optimism or self-efficacy, we conducted a pretest of our Study 2b’s manipulations. One hundred and twenty-one individuals were recruited through Amazon’s Mechanical Turk for this pre-test. One third of the participants completed the backup plan manipulation, one third completed the pure control manipulation, and the remaining one third completed the brainstorming control manipulation. Then all pre-test participants were asked a series of survey questions that were designed to measure their perceived difficulty of earning a “free pass”, self-efficacy, optimism, and perceived likelihood of earning a “free pass” on 1–7 scales (see Appendix D for study materials).

The results of this pre-test showed that the participants who went through the backup plan manipulation did not significantly differ from participants in either of our two control conditions on any of the measured constructs. They did not differ on perceived difficulty of earning a “free pass” ( $M_{\text{backup\_plan}} = 3.78$ ,  $M_{\text{pure\_control}} = 3.79$ ,  $M_{\text{brainstorming\_control}} = 3.98$ ,  $p_{\text{ttest\_backup\_plan\_pure\_control}} = .95$ ,  $p_{\text{ttest\_backup\_plan\_brainstorming\_control}} = .55$ ), self-efficacy ( $M_{\text{backup\_plan}} = 3.86$ ,  $M_{\text{pure\_control}} = 4.19$ ,  $M_{\text{brainstorming\_control}} = 3.80$ ,  $p_{\text{ttest\_backup\_plan\_pure\_control}} = .31$ ,  $p_{\text{ttest\_backup\_plan\_brainstorming\_control}} = .85$ ), optimism ( $M_{\text{backup\_plan}} = 3.65$ ,  $M_{\text{pure\_control}} = 3.46$ ,  $M_{\text{brainstorming\_control}} = 3.82$ ,  $p_{\text{ttest\_backup\_plan\_pure\_control}} = .47$ ,  $p_{\text{ttest\_backup\_plan\_brainstorming\_control}} = .61$ ), or perceived likelihood of earning a “free pass” ( $M_{\text{backup\_plan}} = 4.01$ ,  $M_{\text{pure\_control}} = 3.68$ ,  $M_{\text{brainstorming\_control}} = 4.13$ ,  $p_{\text{ttest\_backup\_plan\_pure\_control}} = .31$ ,  $p_{\text{ttest\_backup\_plan\_brainstorming\_control}} = .73$ ). These results confirm that our backup plan manipulation only alters whether participants think through backup plans and not these other factors that could affect goal performance.

#### 8.4. Results and discussion

Providing yet more support for [Hypothesis 1](#), participants in the backup plan condition performed significantly worse on the sentence-unscrambling task ( $M_{\text{sentences\_unscrambled}} = 6.80$ ,  $SD = 1.30$ ) than participants in the pure control condition ( $M_{\text{sentences\_unscrambled}} = 7.14$ ,  $SD = 1.08$ ,  $t(202) = 2.19$ ,  $p < .05$ ) or participants in the brainstorming control condition ( $M_{\text{sentences\_unscrambled}} = 7.12$ ,  $SD = .99$ ,  $t(195) = 2.02$ ,  $p < .05$ ; see [Fig. 3](#)). These results reveal that merely thinking through a backup plan can causally harm goal performance and the chances of goal success - in this case, successfully earning a “free pass” to skip the second part of our study. Furthermore, by showing that performance in the backup plan condition was significantly lower than that in the brainstorming control condition, these results demonstrate that our backup plan effect is not due to cognitive fatigue from brainstorming.

### 9. Study 3

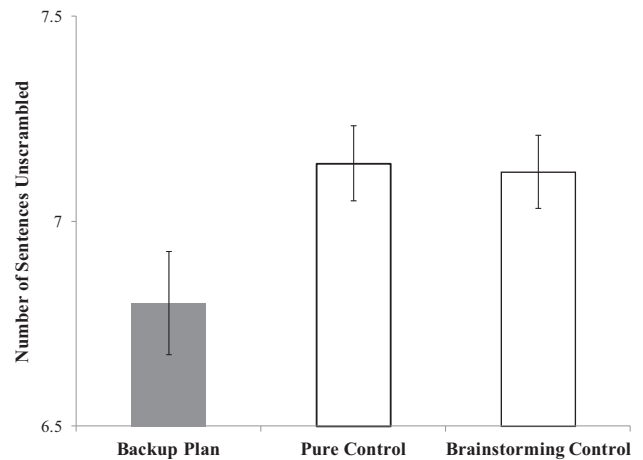
Although Studies 1, 2a, and 2b established the harmful causal impact of thinking through a backup plan on goal performance and ruled out potential alternative explanations for this effect, they did not provide insights into the mediating mechanism responsible for this effect. In Study 3, we replicate the same finding with yet another study population and new study stimuli, and we explore our hypothesized mechanism through a mediation analysis. We also explore and rule out another potential mechanism that might drive our effect—the distraction produced by having a backup plan in mind (which may pull attention away from goal pursuit).

#### 9.1. Participants

One hundred and thirty-four participants at a large Northeastern university in the United States were recruited through the university’s behavioral laboratory to participate in a one-hour session during which they completed a series of research studies. They were paid \$10 for their participation. Our study took approximately 10 minutes of their time.

#### 9.2. Procedures

Participants in our study were randomly assigned to one of two experimental conditions: a control condition or a backup plan condition. All of the participants were given the same task, a sentence-unscrambling task (see Appendix E for complete study stimuli). They were told that if they achieved high performance on this task, they would receive an extra \$1 at the end of the experiment. Thus,



**Fig. 3.** Study 2b results (error bars depict  $\pm 1$  standard error).

all participants were given the primary goal of achieving high performance and earning this \$1 bonus.

Participants in the control condition did not receive any additional instructions before proceeding to the sentence-unscrambling task. Participants in the backup plan condition were prompted to formulate a backup plan before proceeding to the task. They were told, “It’s possible that you will not get the extra \$1 from this study. Think about different ways you could save \$1 in the next 24 hours.” In other words, the participants were asked to construct a backup plan—to think about what they could do if they failed to achieve their primary goal (i.e., earning the additional \$1 in this study) to still pursue their superordinate goal (i.e., having \$1 more to spend).

After completing the task, all participants were asked to fill out a short questionnaire about their experience in the study. We measured our proposed mediator (goal desire) and an alternative mediator (distraction) through this questionnaire. Specifically, we measured participants’ desire for goal success by asking them the extent to which they agreed with the following two statements on a 7-point scale (1–7 anchored on “strongly disagree” and “strongly agree”): “I felt that I really wanted the extra \$1” and “I felt that I must get the extra \$1” ( $\alpha = .82$ ; these two statements were pooled by averaging them into a single measure). We measured participants’ distraction during goal pursuit by asking them the extent to which they agreed with the following two statements on a 7-point scale (1–7 anchored on “strongly disagree” and “strongly agree”): “I was distracted during the sentence tasks” and “I kept thinking about other things during the sentence tasks” ( $\alpha = .97$ ; these two statements were pooled by averaging them into a single measure).

#### 9.3. Results and discussion

Again, consistent with [Hypothesis 1](#), and as illustrated in [Fig. 4](#), we find that participants in the backup plan condition performed significantly worse on the sentence-unscrambling task ( $M_{\text{sentences\_unscrambled}} = 2.38$ ,  $SD = 1.77$ ) than did participants in the control condition ( $M_{\text{sentences\_unscrambled}} = 3.32$ ,  $SD = 2.25$ ;  $t(130) = 2.66$ ,  $p < .01$ ).

Next, we examined whether the desire for goal success mediated the effect of making a backup plan on primary goal performance, as hypothesized. We followed [Baron and Kenny’s \(1986\)](#) four-step procedure for testing mediation. An OLS regression analysis showed that making a backup plan significantly predicted goal performance ( $b = -.94$ ,  $SE = .35$ ,  $t(130) = -2.66$ ,  $p < .01$ ), satisfying the first step. Making a backup plan also significantly predicted

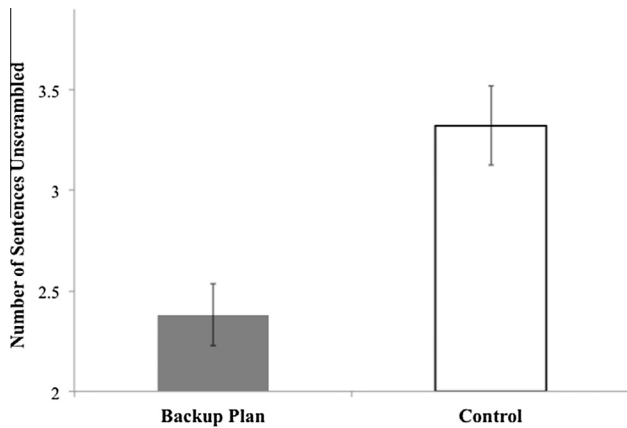


Fig. 4. Study 3 results (error bars depict  $\pm 1$  standard error).

goal desire ( $b = -.60$ ,  $SE = .30$ ,  $t(130) = -1.99$ ,  $p < .05$ ), satisfying the second step. Further, when controlling for making a backup plan, goal desire significantly predicted goal performance ( $b = .40$ ,  $SE = .10$ ,  $t(130) = 4.21$ ,  $p < .001$ ), satisfying the third step. Finally, after controlling for goal desire, the effect of making a backup plan on goal performance decreased (from  $b = -.94$ ,  $SE = .35$ ,  $t(130) = -2.66$ ,  $p < .01$  to  $b = -.61$ ,  $SE = .32$ ,  $t(130) = -1.90$ ,  $p > .05$ ), satisfying the fourth step in Baron and Kenny's procedure.

We used a bootstrapping method to estimate the size of our goal desire mediator's indirect effect: we created 1000 random samples with replacement from the full sample. The indirect effect of goal desire was  $-.24$  and the 95% confidence interval excluded zero ( $-.58, -.03$ ), supporting our Hypothesis 2. However, we do not see a significant difference in distraction between conditions ( $M_{\text{backup\_plan}} = 3.65$ ,  $SD = 1.82$ ,  $M_{\text{control}} = 3.40$ ,  $SD = 1.77$ ;  $t(130) = .80$ ,  $p = .43$ ), nor does distraction mediate the effect of making a backup plan on goal performance.<sup>1</sup>

## 10. General discussion

Across three studies, we find that making a backup plan can indeed have harmful effects on goal pursuit (Studies 1–3). In Study 1, we find that making a backup plan leads to reduced primary goal performance. In Study 2a and 2b, we replicate the main effect from Study 1, while ruling out alternative explanations for this effect. Results from Study 2a rule out the possibility that our backup plan manipulation reduces primary goal performance by dampening the appeal of the superordinate goal, and results from Study 2b show that mere fatigue from brainstorming cannot explain our main effect. In Study 3, we find evidence that the mediating mechanism driving the backup plan effect is a dampening of the desire for goal success, and we further rule out distraction as an alternative mediating mechanism.

This research makes important contributions to the literatures on plan-making, goal performance, and multiple attainment means. Specifically, we highlight a previously unexplored downside to one type of plan-making: making a backup plan. Decision-making scholars have primarily focused on the benefits of plan-making for goal achievement without acknowledging the potential costs. Our research sheds light on an important downside

of thinking through a backup plan: it can reduce a decision maker's desire to achieve her primary goal and thereby reduce her effort and chances for goal success. Additionally, motivation scholars have focused primarily on understanding how goal characteristics (i.e., goal specificity, goal difficulty) affect goal performance (Locke & Latham, 1990; Locke et al., 1989; see Locke and Latham (2002), for a review). However, the theory and empirical results in this paper highlight the importance of examining factors beyond a goal's characteristics that can also affect goal performance—in this case, whether the goal setter has made a backup plan. Finally, our paper extends and complements existing research on multiple attainment means. The existing multiple attainment means literature showed that having multiple means of obtaining a primary goal can have positive effects on primary goal pursuit; here, we show that the mere act of *thinking through* a backup plan (so it will be available for execution in the case of primary goal failure) can actually be harmful to primary goal motivation and performance. In an additional study we conducted (described in more detail in Appendices F and G), we explicitly compare the effects of (a) having multiple means for attaining the same primary goal to the effect of (b) making a backup plan and show that primary goal commitment is increased by having an additional means of attaining the primary goal but primary goal desire is decreased by making a backup plan.

It is important to note that our theory and findings apply primarily to goals that can be achieved through the exertion of effort. That is, our theory suggests the negative effect of making a backup plan on primary goal performance should be most relevant to situations where *effort* is a key determinant of goal performance. This is because we theorize (and find) that making a backup plan reduces goal performance by dampening goal desire. Dampened goal desire should reduce effort, but dampened goal desire should not affect other determinants of performance, such as luck or innate skill (i.e., dampened goal desire cannot make someone less lucky or erode her innate skill). Therefore, making a backup plan should be expected to reduce goal performance when performance is highly sensitive to effort (as was the case in all of the contexts explored in this paper), but making a backup plan should not be expected to reduce goal performance when performance is solely driven by luck or innate skill.

In fact, making a backup plan might lead to overall better results when goal performance is largely dependent on factors outside of a person's control. In such cases, the costs of making a backup plan may be minimal (since the costs are reduced effort, which should not matter when performance is not effort-dependent), while the benefits could be significant. One such benefit of making a backup plan could be a more realistic and balanced perspective on the likelihood of achieving a primary goal. For example, imagine that your goal is to make a lot of money in the stock market. If you only think about the ideal outcome (i.e., that the stock of company you invest in will skyrocket), you may overestimate the probability of that ideal outcome while underestimating the amount of risk involved, which could lead to more biased decision making (Kahneman & Lovallo, 1993). On the other hand, if you make a backup plan, thereby thinking, by necessity, about scenarios associated with less ideal outcomes, you may gain a more realistic and balanced perspective, which could lead to better decision making (Koehler, 1991, 1994; Rottenstreich & Kivetz, 2006; Shu, 2008). It would be extremely valuable to further investigate this possibility.

In future research, it would be interesting to explore a variety of moderators of the harmful effect of making a backup plan. For instance, it is likely the case that some types of backup plans are less harmful for goal performance than others. For example, if individuals intentionally develop a backup plan that is considerably less attractive than their primary plan, that may not reduce their

<sup>1</sup> Making a backup plan did not significantly predict distraction ( $b = .25$ ,  $SE = .31$ ,  $t(130) = .80$ ,  $p = \text{n.s.}$ ). Further, the indirect effect of the hypothetical distraction mediator was minuscule and slightly negative, and the 95% confidence interval in a bootstrapping test for mediation (conducted following the steps described previously) included zero ( $-.31, .06$ ), indicating that we do not find significant support for the distraction mediator in this experiment.

effort and resulting performance (on the primary goal) as much as a more attractive backup plan. Additionally, *who* makes the backup plan may matter. If you make a backup plan for yourself, you may respond differently than if someone else makes a backup plan for you. For example, if a friend makes a backup plan for you, it may have a smaller impact on your effort and performance.<sup>2</sup> While self-set goals tend to be more effective than other-set goals (as they induce higher goal commitment; Locke, 1996), self-set backup plans may be more harmful than other-set backup plans. Lastly, how certain you are about your desire to achieve the primary goal could make a difference. If you are relatively certain about how strongly you desire a goal, making a backup plan may barely reduce goal desire and resulting goal performance. On the other hand, if you are relatively uncertain about how much you desire a goal, making a backup plan may reduce goal desire and goal performance to a much greater extent. It would be interesting and valuable to explore these potential moderators of the negative effects of making a backup plan in future research. Finally, future research can look into the antecedents of backup plan formation. We predict that individuals may be more likely to make backup plans as perceived goal difficulty becomes higher or as perceived goal controllability becomes lower. It would be interesting to expand the current research into these topics.

One limitation of the current research is that we tested the causal effect of thinking through backup plans in online and offline laboratory experiments, but not in the field. We took an initial step towards validating our findings in the field by conducting an exploratory survey of 120 individuals at a train station, as mentioned in the introduction. In this survey, we asked people to identify a goal that they were trying to achieve and to indicate whether they had made a backup plan in case they failed to achieve that goal. We also asked how much effort they were expending toward their goals. Consistent with the results of Studies 1, 2, and 3, we observed a significant negative correlation between whether participants had made a backup plan and their self-reported effort exerted towards goal achievement. While these results provide some preliminary evidence in a naturalistic setting that is consistent with the results of our experimental studies, this evidence is only correlational. Further field research establishing the magnitude of the causal effect shown in our laboratory studies would be valuable.

Another limitation of our current studies is that the tasks they relied upon were relatively simple. In real life, however, many goals require sustained effort over an extended period of time. Also, the intervention employed in our studies to promote backup plan formation was a minimal one, arguably making our test of the impact of backup plan formation on performance very conservative. It is plausible that developing a more detailed backup plan might produce even stronger effects, and these effects might further be enhanced for complex, long-term goals. A study exploring the impact of backup plans that track people's performance on goal-related pursuits over an extended period of time would be meaningful.

In addition to advancing academic knowledge, the findings presented in this paper provide practical insights into how individuals can make better-informed decisions in environments characterized by high uncertainty, answering the recent call for more research on improving decision making (Milkman et al., 2009). We find that making a backup plan can reduce goal performance and hurt an individual's chances of achieving her goal by reducing her desire for goal success, in settings where goal performance is sensitive to effort. With this knowledge, decision makers may be

better equipped to weigh the costs of contemplating backup plans (dampened goal desire and lower performance on their primary goal) against its benefits (the psychological insurance of having a backup plan). Some may behave differently when this tradeoff is made apparent, while others may find ways to avoid or minimize the unintended costs of making a backup plan. The findings from this research can be applied to improve many different types of decision making under uncertainty, from consequential decisions about careers and jobs to minor decisions about test preparation and what plans to make on a daily basis at work.

## Acknowledgements

We thank the Associate Editor Madan Pillutla and the anonymous reviewers for their extremely helpful guidance and feedback. We are grateful to Adam Grant, Laura Huang, Ting Zhang, Todd Rogers, Boris Vabson, Katie Shonk, Katy Milkman's research group at Wharton, SJDM 2014 attendees, and UW-Madison Brown Bag members for their insightful comments for this research.

## Appendix A. Supplementary material

Supplementary data associated with this article can be found, in the online version, at <http://dx.doi.org/10.1016/j.obhdp.2016.04.003>.

## References

- Armitage, C. J. (2007). Effects of an implementation intention-based intervention on fruit consumption. *Psychology and Health*, 22, 917–928.
- Armitage, C. J., & Arden, M. A. (2008). How useful are the stages of change for targeting interventions? Randomized test of a brief intervention to reduce smoking. *Health Psychology*, 27, 789–798.
- Bagozzi, R. P., Dholakia, U. M., & Basuroy, S. (2003). How effortful decisions get enacted: The motivating role of decision processes, desires, and anticipated emotions. *Journal of Behavioral Decision Making*, 16, 273–295.
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173.
- Berger, C. R., & Calabrese, R. J. (1975). Some explorations in initial interaction and beyond: Toward a developmental theory of interpersonal communication. *Human Communication Research*, 1, 99–112.
- Diefendorff, J. M., & Chandler, M. M. (2011). Motivating employees. In Sheldon Zedeck (Ed.), *APA handbook of industrial and organizational psychology. Maintaining, expanding, and contracting the organization* (vol. 3, pp. 65–135). Washington, DC, US: American Psychological Association.
- Gneezy, U., List, J. A., & Wu, G. (2006). The uncertainty effect: When a risky prospect is valued less than its worst possible outcome. *The Quarterly Journal of Economics*, 1283–1309.
- Gollwitzer, P. M. (1999). Implementation intentions: Strong effects of simple plans. *American Psychologist*, 54, 493–503.
- Heath, C., Larrick, R. P., & Wu, G. (1999). Goals as reference points. *Cognitive Psychology*, 38(1), 79–109.
- Hogg, M. A., & Terry, D. I. (2000). Social identity and self-categorization processes in organizational contexts. *Academy of Management Review*, 25, 121–140.
- Hollenbeck, J. R., & Williams, C. R. (1987). Goal importance, self-focus, and the goal-setting process. *Journal of Applied Psychology*, 72(2), 204.
- Huang, S. C., & Zhang, Y. (2013). All roads lead to Rome: The impact of multiple attainment means on motivation. *Journal of Personality and Social Psychology*, 104, 236.
- Johnson, E. J., Häubl, G., & Keinan, A. (2007). Aspects of endowment: a query theory of value construction. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 33(3), 461.
- Johnson, E. J., Shu, S. B., Dellaert, B. G., Fox, C., Goldstein, D. G., Häubl, G., ... Weber, E. U. (2012). Beyond nudges: Tools of a choice architecture. *Marketing Letters*, 23(2), 487–504.
- Kahneman, D., & Lovallo, D. (1993). Timid choices and bold forecasts: A cognitive perspective on risk taking. *Management Science*, 39(1), 17–31.
- Kanfer, R., Chen, G., & Pritchard, R. D. (Eds.). (2008). *Work motivation: Past, present, and future*. New York: Taylor and Francis Group.
- Koehler, D. J. (1991). Explanation, imagination, and confidence in judgment. *Psychological Bulletin*, 110, 499–519.
- Koehler, D. J. (1994). Hypothesis generation and confidence in judgment. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 20, 461–469.
- Kruglanski, A. W., Pierro, A., & Sheveland, A. (2011). How many roads lead to Rome? Equifinality set-size and commitment to goals and means. *European Journal of Social Psychology*, 41, 344–352.

<sup>2</sup> While not an exact test of this conjecture, the Study 2a results do suggest that simply seeing someone else's list of potential backup plans is not enough to harm primary goal performance.



- Locke, E. A. (1996). Motivation through conscious goal setting. *Applied and Preventive Psychology*, 5(2), 117–124.
- Locke, E. A., Chah, D. O., Harrison, S., & Lustgarten, N. (1989). Separating the effects of goal specificity from goal level. *Organizational Behavior and Human Decision Processes*, 43(2), 270–287.
- Locke, E. A., & Latham, G. P. (1990). *A theory of goal setting & task performance*. Prentice-Hall Inc.
- Locke, E. A., & Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. *American Psychologist*, 57, 705.
- Ly, K., Mazar, N., Zhao, M., & Soman, D. (2013). *A practitioner's guide to nudging. Behavioural economics in action report series*. Rotman School of Management. March.
- Lynch, J. G., Jr, Netemeyer, R. G., Spiller, S. A., & Zammit, A. (2010). A generalizable scale of propensity to plan: The long and the short of planning for time and for money. *Journal of Consumer Research*, 37(1), 108–128.
- March, J. G. (1996). Learning to be risk averse. *Psychological Review*, 103, 309.
- Milkman, K. L., Beshears, J., Choi, J. J., Laibson, D., & Madrian, B. C. (2011). Using implementation intentions prompts to enhance influenza vaccination rates. *Proceedings of the National Academy of Sciences*, 108, 10415–10420.
- Milkman, K. L., Beshears, J., Choi, J. J., Laibson, D., & Madrian, B. C. (2013). Planning prompts as a means of increasing preventive screening rates. *Preventive Medicine*, 56, 92–93.
- Milkman, K. L., Chugh, D., & Bazerman, M. H. (2009). How can decision making be improved? *Perspectives on Psychological Science*, 4(4), 379–383.
- Milne, S., Orbell, S., & Sheeran, P. (2002). Combining motivational and volitional interventions to promote exercise participation: Protection motivation theory and implementation intentions. *British Journal of Health Psychology*, 7, 163–184.
- Nickerson, D. W., & Rogers, T. (2010). Do you have a voting plan? Implementation intentions, voter turnout, and organic plan making. *Psychological Science*, 21(2), 194–199.
- Rogers, T., Milkman, K., John, L., & Norton, M. I. (in press). Making the best laid plans better: How plan-making increases follow-through. *Behavioral Science and Policy*. in press.
- Rottenstreich, Y., & Kivetz, R. (2006). On decision making without likelihood judgment. *Organizational Behavior and Human Decision Processes*, 101, 74–88.
- Rottenstreich, Y., & Shu, S. (2004). The connections between affect and decision making: Nine resulting phenomena. *Blackwell Handbook of Judgment and Decision Making*, 444–463.
- Schmitt, N., Cortina, J. M., Ingerick, M. J., & Wiechmann, D. (2003). Personnel selection and employee performance. *Handbook of Psychology*.
- Shu, S. B. (2008). Future-biased search: The quest for the ideal. *Journal of Behavioral Decision Making*, 21(4), 352–377.
- Soman, D., & Cheema, A. (2004). When goals are counterproductive: The effects of violation of a behavioral goal on subsequent performance. *Journal of Consumer Research*, 31(1), 52–62.
- Van der Linden, D., Frese, M., & Meijman, T. F. (2003). Mental fatigue and the control of cognitive processes: effects on perseverance and planning. *Acta Psychologica*, 113(1), 45–65.