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Different framing of the same duration (one year, 12 months, 365 days) can influence consumers' impressions of subjective duration, thereby affecting their judgments and decisions. The authors propose that, ironically, self-relevance amplifies this duration framing effect. Consumers for whom a particular self-improvement domain is personally relevant are less likely to adopt a one-year self-improvement plan as compared with a 12-month plan because they perceive it as longer and more difficult. This bias is more likely to manifest in consumers who report that the task is highly personally relevant to them, who are making predictions for themselves (vs. others), and who have high (vs. low) task involvement. Personal relevance amplifies this effect because it prompts process-focused simulation of the plan, consequently increasing susceptibility to spurious duration and difficulty cues embedded in frames.

Keywords: duration framing, personal relevance, process simulation, mental simulation, duration perception

Personal Relevance and Mental Simulation Amplify the Duration Framing Effect

Duration perception is an important determinant of consumer behavior in several domains. Evaluations of services and experiences typically depend on consumers' perceptions of the duration of these services and experiences. Duration perception is especially important for many products and services that require behavior monitoring and compliance on the part of the consumers. Self-improvement plans, such as adopting a diet, following an exercise regimen, and controlling spending, necessitate continuous compliance throughout a designated duration. For these services or experiences, perception of a longer duration may lead to less favorable evaluations. For example, all else being equal, the longer consumers perceive a diet plan to require sustained effort, the less likely they are to adopt it. Our research attempts to understand when and how duration framing (e.g., varying the description of a diet plan as a one-

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THE EFFECTS OF DURATION FRAMING

There is good reason to believe that the way a time period is framed will influence the perceived duration of a selfimprovement plan. For example, a diet plan can engender different responses depending on whether it is framed as a one-year plan, 12-month plan, or 365-day plan, even though these frames are normatively identical. Previous research demonstrates that the units used to describe time periods can cause biases in judgments. For example, Ülkümen, Thomas, and Morwitz (2008) compare two budget periods of different length and find that budget estimates for one year are more than 12 times as large as budget estimates for one month. Furthermore, Monga and Bagchi (2012) demonstrate that unitosity effects can occur even when the objective time period is kept constant. These researchers demonstrate that changes can seem magnified when presented in larger units. That is, frames that involve larger units may be perceived as longer because they are usually used to communicate longer time periods and thus are associated with longer intervals. Consequently, one year may feel longer

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than 12 months because people use years to refer to longer durations and months to refer to shorter durations. However, biases in duration perception can be caused not only by unitosity effects but also by numerosity effects (Pelham, Sumarta, and Myaskovsky 1994). The numerosity effect suggests that as the number increases, perceptions of an interval's length may increase. According to this notion, 365 days may feel longer than 12 months.

However, the extant literature does not clarify whether these duration framing effects (caused by unitosity and numerosity) will always matter, particularly given the view that framing effects are fickle and manifest only under conditions of superficial processing (LeBoeuf and Shafir 2003; Smith 1985). Our work extends the literature by identifying an important moderator of the duration framing effect: personal relevance.

PERSONAL RELEVANCE AND DURATION FRAMING

Although the influence of personal relevance on framing effects has not been explicitly studied, past findings imply that higher personal relevance would either attenuate or not influence such effects. One stream of research posits that framing effects are a manifestation of superficial processing and can be eliminated by deeper thinking (e.g., Smith 1985). According to this view, high personal relevance should eliminate framing effects to the extent that it increases processing motivation. A second view suggests that framing effects are hardwired and thus unlikely to be eliminated by deeper thinking (e.g., Arkes 1991; for a discussion, see LeBoeuf and Shafir 2003). According to this perspective, personal relevance would not influence framing effects.

In contrast to these two views, we propose that personal relevance can actually *exacerbate* framing effects when deciding whether to adopt a self-improvement plan. In particular, we hypothesize that consideration of a plan requires mental simulation to the extent that the plan is personally relevant. We propose that this simulation will amplify the impact of cues that signal length of duration (e.g., those embedded in frames) on perceived duration, thus amplifying the difficulty of the plan. Note that such a finding would imply, surprisingly, that consumers are more likely to fall prey to framing effects when contemplating plans that are most personally relevant.

This proposition not only identifies when and how duration framing affects judgments but also sheds light on the process behind framing effects in general by delineating the role of mental simulation. More generally, our demonstration contributes to the literature on framing effects by suggesting that those caused by mental simulation are likely to be exacerbated, rather than mitigated, by personal relevance. We next turn to a more detailed theoretical motivation of the role of personal relevance and mental simulation in duration framing effects.

EXPLORING THE PROCESS: ROLE OF MENTAL SIMULATION

Consumers frequently encounter self-improvement plans; some of these plans are personally relevant to them, whereas others are not. For example, consider a new diet plan. We postulate that consumers who are concerned about their weight will process information regarding this plan differently than those who are not. A schematic representation of our proposed framework appears in Figure 1.

Personal Relevance Triggers Mental Simulation

We posit that for personally relevant plans, consumers judge the likelihood of success by mentally simulating the plan. Evidence that simulation is more likely for personally relevant information can be found in literature on stereotyping and empathy. Using electroencephalography, Gutsell and Inzlicht (2010) find that motor neurons are active when participants observe a member of an in-group performing an action but not when participants observe a member of an out-group performing the same action. The authors conclude that "a spontaneous and implicit simulation of others" action states may be limited to close others and, without active effort, may not be available for outgroups" (p. 841).

Consistent with this notion, brain imaging research on the "default network" (for a review, see Buckner, Andrews-Hanna, and Schacter 2008) suggests that subsystems responsible for autobiographical memories are connected



Figure 1 THEORETICAL FRAMEWORK

with subsystems that use this autobiographical information during the construction of self-relevant mental simulations. This suggests a strong association between self-relevant information and mental simulation.

Building on these findings, we propose that high levels of personal relevance will make mental simulation of a scenario more likely and thus enhance its impact on anticipated success of sustained self-regulation. When a consumer is presented with a self-relevant plan, he or she will spontaneously engage in mental simulation to judge the expected success of the plan.

Process- Versus Outcome-Oriented Simulation

Previous literature distinguishes two types of mental simulation: outcome-focused simulation, which involves envisioning the outcome the person wants to achieve, and process-oriented simulation, which involves envisioning the process leading up to the desired outcome (Pham and Taylor 1999; Taylor et al. 1998). Past research has demonstrated differential effects of process and outcome simulations on marketing-related outcomes (MacInnis and Price 1987), specifically, product evaluations (Zhao, Hoeffler, and Zauberman 2011), new product adoption (Castaño et al. 2008), effectiveness of advertising claims (Escalas and Luce 2003, 2004), decision difficulty (Thompson, Hamilton, and Petrova 2009), and preference consistency over time (Zhao, Hoeffler, and Zauberman 2007).

Studies of self-relevance and mental simulation described in the previous section do not distinguish process and outcome simulation. We propose that when evaluating personally relevant tasks that require sustained self-regulation, such as dieting or saving, consumers will tend to simulate process ("How would it feel to sustain this diet from start to finish?") more than outcome ("How would it feel to lose weight as a result of this diet?").

Process Simulation Increases Duration Framing Effects

Process simulation entails visualizing or thinking about the various steps in implementing a behavior. This cognitive process requires people to imagine the activity in sequence from beginning to end. When a person assesses an activity's duration through process simulation, this process may be unduly influenced by superficial cues. For example, Cerritelli et al. (2000) find that participants took longer to imagine walking a fixed distance when they were asked to imagine doing so with a 25-kilogram weight on their shoulders; however, when asked to actually complete this activity, the weight did not increase walking times.

If process simulation is influenced by superficial cues, duration judgments that rely on such simulation should be likewise affected. For example, Brunyé, Mahoney, and Gardony (2010) show that the tendency to perceive south to be "downhill" and north "uphill" influences estimates of travel time, but only when people adopted an egocentric perspective to describe movement on a map, which promotes process-based simulation of traveling a route. Thus, these findings suggest that process simulation exacerbates the impact of spurious associations on duration estimates.

Likewise, we hypothesize that the impact of duration framing (unitosity and numerosity effects) will be stronger when people engage in process simulation. For example, a consumer who simulates following a diet plan may perceive the duration to be longer when it is described as a one-year plan rather than a 12-month plan, even if they are otherwise identical plans. However, another consumer who does not engage in process simulation may be less likely to perceive these differentially framed plans as having different durations. Thus, we expect process simulation to *amplify* frameinduced differences in duration perception.

Perceived Duration Signals Task Difficulty

For self-regulation tasks, perceived duration serves as a signal of task difficulty. When deciding whether to adopt a self-improvement plan, consumers often evaluate its difficulty. An important difficulty cue is the subjective length of the sustained self-regulation required, which will be influenced by the duration frame. Thus, a consumer who simulates the process of following a diet plan will perceive the plan to be more difficult when it is described in a frame that imparts longer duration perceptions (e.g., one year) than when it is described in a frame that imparts shorter duration perceptions (e.g., 12 months). As a result, this consumer will be less confident in his or her ability to complete the diet and less likely to adopt it.

In summary, we propose that when evaluating personally relevant tasks, consumers will tend to simulate the process ("How would it feel to be on this diet?") rather than the outcome ("How would it feel to lose weight as a result of this diet?"). We further propose that in the case of selfimprovement plans, perceived plan duration is often an important determinant of adoption. For example, all else being equal, consumers would be less likely to adopt the same diet plan when they perceive it to be longer than when they perceive it to be shorter, because a longer duration signals higher plan difficulty. Thus, frames that induce the perception of longer duration (e.g., "one year" compared with "12 months") will lead to expectations of lower success and lower likelihood of adopting the plan.¹

Hypotheses

Several testable predictions emerge from the research previously reviewed. First, we posit that the effect of duration framing on anticipated success following a plan will be moderated by personal relevance of the plan. Formally:

H₁: Duration framing exerts a greater influence on expected plan success under conditions of high (vs. low) personal relevance.

Furthermore, we posit that personal relevance will moderate framing effects because it amplifies the influence of frame-induced duration and difficulty cues. Formally:

H₂: Consumers' perceptions of (a) plan duration and (b) plan difficulty are more likely to differ across frames for plans that are personally relevant than for plans that are not personally relevant.

We also posit that personal relevance moderates duration framing effects because consumers naturally contemplate the process of following the plan for personally relevant goals. In contrast to process simulation, outcome simulation does not amplify frame-induced differences in duration and

¹Our prediction is based on the assumption that duration framing influences only duration perceptions, not the difficulty of steps required each period.

difficulty perceptions. Therefore, we do not expect outcome simulation to give rise to duration framing effects, regardless of the level of personal relevance. Thus, we hypothesize that priming participants to engage in process (vs. outcome) simulation will moderate the interactive effects of duration framing and personal relevance. Formally:

- H_{3a}: When a plan is personally relevant, the duration framing effect manifests when consumers are unprompted or when they are explicitly instructed to engage in process simulation.
- H_{3b}: When a plan is not personally relevant, the duration framing effect does not manifest unless consumers are explicitly instructed to engage in process simulation.
- H_{3c}: The duration framing effect does not manifest under outcome simulation instructions, regardless of level of personal relevance.

We next test these predictions in five laboratory studies. The first study demonstrates that personal relevance amplifies the effect of duration and difficulty cues conveyed by different descriptions of a time period. Specifically, it shows that consumers for whom dieting is more (vs. less) personally relevant are more influenced by the way a diet plan is framed (e.g., 365 days, 12 months, one year). Studies 2a and 2b examine the nature of the personal relevance construct. Study 2a demonstrates that duration framing influences judgments pertaining to self (vs. others) and influences consumers who are more (vs. less) concerned about the goal promoted by the plan. Study 2b establishes that the moderating role of personal relevance is due to a motivational mechanism through increased involvement with the task rather than to greater expertise or familiarity with the task. Study 3 examines the consequences of frame-induced biased duration and difficulty perceptions in the domain of personal finance. Specifically, this study shows that consumers who are more (vs. less) concerned about their finances discount delayed rewards at a higher rate when the period is framed as one year (vs. 12 months). Finally, in Study 4, we provide evidence for two key processes postulated in our framework. This study reveals that (1) under high personal relevance, duration framing influences judgments due to biased duration and difficulty perceptions and (2) personal relevance moderates this framing effect because it triggers process simulation.

STUDY 1: ONE YEAR/12 MONTHS/365 DAYS-PERSONAL RELEVANCE AS A MODERATOR

Pretesting Duration Frames

Although previous literature hints that different descriptions of the same duration may influence duration perceptions (Ülkümen, Thomas, and Morwitz 2008), researchers have not empirically tested this possibility. To determine how various duration frames affect duration perceptions, we first ran a simple pretest. One hundred four participants from an online panel indicated which frame made a diet plan seem longest: (1) 365 days, (2) 12 months, or (3) one year. Subsequently, they indicated which time frame made a diet plan seem most difficult. The results appear in Table 1. A chi-square test of equal proportions revealed that framing influenced perceived duration ($\chi^2(2) = 31.98$, p < .001). Thus, according to these choices, respondents perceived the 365-day frame as longer than one year (i.e., numerosity prevails), which they perceived as longer than 12 months (i.e.,

Table 1 PRETEST RESULTS: FRAMING INFLUENCES—PERCEPTIONS OF DURATION AND DIFFICULTY OF A DIET

	365 Days	12 Months	One Year
Which frame feels longest?	57%	11%	32%
Which frame feels most difficult?	61%	4%	35%

unitosity prevails). In the context of dieting, plans that were perceived as longer were also considered more difficult. Therefore, framing influenced perceived difficulty in a similar way ($\chi^2(2) = 50.44, p < .001$).

Moderation Study

Study 1 aims to provide an initial demonstration that personal relevance can exacerbate duration framing effects (H₁). In this study, participants indicated the likelihood of undertaking a rigorous diet plan described as a 12-month plan, a one-year plan, or a 365-day plan. The results of our pretest establish that the 365-day frame is perceived as the longest, followed by the one-year frame and then the 12month frame. Our conceptualization suggests that personal relevance should amplify the effects of these frame-induced differences. Accordingly, we expect that when a plan is personally relevant, the 12-month plan will be associated with highest success, followed by the one-year plan and the 365day plan. In contrast, when personal relevance is low, the influence of frame-induced duration cues on expectancies should be diminished.

Method

Participants and procedure. One hundred eighty-three students participated in the study. Participants were presented with the description of a diet that required them to restrict their calorie intake for one year, 12 months, or 365 days, according to the condition to which they were assigned. This diet plan required them to avoid a long list of foods including pasta, rice, and alcohol. It was suggested that maintaining this diet for the indicated duration would help maintain an ideal body mass index (BMI). After reading the description, participants indicated how likely they would be to adopt this diet (1 = "very unlikely," and 7 = "very")likely"). To measure personal relevance, we asked participants to rate how concerned they were with their BMI (1 ="not concerned at all," and 7 = "very concerned"). Presumably, a diet plan that promises to improve participants' BMI should be more personally relevant for participants who are more concerned with their BMI.

Results

Likelihood to adopt diet. We coded the three levels of the duration frame variable using two dummy variables, D1 and D2, where one year was set as the comparison group. We coded the first dummy variable (D1) as 1 when the duration was framed as 12 months and as 0 in all other conditions; we coded the second dummy variable (D2) as 1 when the duration was framed as 365 days and as 0 in all the other conditions. We mean-centered the continuous personal relevance measure. The results revealed a main effect of personal relevance (b = .209, t = 2.30, p < .05), a significant two-way interaction between D1 and personal relevance (b =

.317, t = 2.89, p < .05), and a significant two-way interaction between D2 and personal relevance (b = -.363, t = -2.57, p < .05). To explore this interaction, we examined the effects of frame at one standard deviation above and below the mean personal relevance score by mean-shifting the data (Aiken and West 1991). At high personal relevance, the dummy variable comparing 12 months with one year had a significant, positive effect (b = .806, t = 2.46, p < .05) and the dummy variable comparing 365 days with one year had a significant, negative effect (b = -1.032, t = -3.18, p <.005). At low personal relevance, the effects of dummy variables were not significant (ps > .10).

In addition, a spotlight analysis at one standard deviation above the mean personal relevance measure showed that participants were more likely to adopt the diet when it was framed as a 12-month plan rather than a one-year plan $(M_{12months} = 3.45, M_{1year} = 2.64)$ and least likely to adopt the diet when it was framed as a 365-day plan $(M_{365days} = 1.61)$. At a low level of personal relevance, there was no difference between the likelihood of adopting the 12-month or 365-day diets when compared with the one-year diet $(M_{12months} =$ $1.72, M_{1year} = 1.96, M_{365days} = 2.11)$ (see Figure 2).

Discussion

The results of Study 1 offer preliminary support for the hypothesis that personal relevance can amplify duration framing effects (H₁). As we predicted, participants who were concerned about their BMI were sensitive to the way the diet duration was framed. Specifically, these participants were more (less) likely to adopt a diet when it was described using a frame that induced shorter (longer) duration perceptions. In contrast, framing did not influence the likelihood estimates of participants who were not concerned about their BMI.

In the next two studies, we examine the nature of the key personal relevance construct. In Study 1, we measured personal relevance. In Studies 2a and 2b, we employ different ways of assessing and manipulating personal relevance.

STUDY 2A: PERSONAL RELEVANCE AS PERSPECTIVE

In this study, we operationalized personal relevance in two ways: perspective (self vs. others) and concern with





BMI. If both measures conform to the predicted pattern of results, this study will provide converging evidence for the role this key variable plays. In this and in all remaining studies, we limit our investigation to the two frames used most frequently to refer to annual plans, namely, the 12-month frame and the one-year frame.²

Method

Participants and procedure. Sixty-eight undergraduate and graduate students took part in the study for partial course credit. Participants were presented with the same diet plan as in Study 1, which we described as a plan that would help maintain an ideal BMI. This time, we framed the diet plan as either a 12-month plan or a one-year plan.

We assessed personal relevance in two ways: perspective (self vs. others) and concern with BMI. After reading the diet plan, participants first indicated how likely they would be to adopt this plan and then how likely an average student would be to adopt it (1 = "not likely at all," and 7 = "very likely"). Finally, we measured how concerned participants were about their BMI (1 = "not concerned at all," and 7 = "very concerned"). We expected both factors, perspective and concern with BMI, to interactively influence participants' intentions to adopt the diet plan. Specifically, we expected to observe a larger effect of duration framing for those who were more (vs. less) concerned with their BMI as well as for those who made estimates about themselves (vs. others).

Results

Three participants' responses regarding the likelihood to adopt the diet measure were more than three standard deviations away from the mean, and therefore we excluded them from further analysis. Participants' reported concern for BMI was unaffected by the frame manipulation (M12months = 4.46, $M_{1year} = 4.27$; F(1, 63) < 1). We conducted a mixed factorial regression analysis on likelihood to adopt the diet with the following independent variables: (1) a dummy variable for frame (12 months = 0, one year = 1), (2) concern for BMI as a continuous personal relevance score, (3) a dummy variable for perspective (other = 0, self = 1), and all the two-way and three-way interaction terms. We specified perspective as a within-subject factor. The results revealed a main effect of perspective (b = -1.53, t = 3.03, p < .01), a significant two-way interaction between perspective and personal relevance (b = .381, t = 3.70, p < .001), and most important, a significant three-way interaction (b = -.512, t = 3.08, p < .01). A spotlight analysis showed that when participants' judgments pertained to themselves, at one standard deviation above mean personal relevance, they were more likely to start a 12-month diet than a one-year diet ($M_{12months} = 3.12$, $M_{1year} = 1.38$). At one standard deviation below mean personal relevance, there was no effect of frame ($M_{12months} = 1.49$, $M_{1year} = 1.48$). However, when the judgments pertained to others, framing did not affect judgments even when personal relevance was high (see Figure

²We conducted an online search to examine the relative frequency of use of the 365-day, 12-month, and one-year frames. This search revealed that the 365-day frame was the least frequently used among these frames. In line with these results, we included only the one-year and 12-month frames in remaining studies.

3). Furthermore, slope analysis confirmed that the interaction between framing and personal relevance was significant for judgments about the self (b = .453, t = 3.00, p < .01) but not about others (b = .059, t < 1, p = .71).

STUDY 2B: PERSONAL RELEVANCE AS INVOLVEMENT OR EXPERTISE

So far, we have assessed personal relevance as participants' reported concern with their BMI and as differences in self/other perspective. We have not yet addressed whether the moderating role of personal relevance is due to a motivational mechanism through increased involvement with the task or due to higher expertise or familiarity with the task. To explore this issue, in this study, we manipulated personal relevance using a well-established manipulation of involvement and measured participants' expertise and familiarity with dieting.

Method

Participants and procedure. Ninety-five undergraduate students who were fluent in English participated in the study in exchange for partial course credit. The study had a 2 (frame: 12-month, one-year) \times 2 (personal relevance: low, high) between-subjects design. Participants were presented with the same diet plan as in previous studies, described either as a one-year or a 12-month diet plan.

We used a modified version of a well-established manipulation of involvement to manipulate personal relevance (Ahluwalia 2002). Participants were told that a Health Science Committee was testing a new diet to help people attain their ideal BMI. Those in the high-personalrelevance condition were then told that they were one of the few people who had been asked to provide input on this diet, and therefore their evaluations would play an important role in the committee's choice. Those in the low-personalrelevance condition were told that the committee was surveying large samples of people, and their individual opinions were not very important because they would be averaged with those of many others.

Figure 3

STUDY 2A: DURATION FRAMING EFFECT MANIFESTS ONLY FOR THE SELF AND WHEN PERSONAL RELEVANCE IS HIGH



After reviewing the diet plan, participants indicated how likely they were to adopt this diet (1 = "not likely at all." and 7 = "very likely"). Participants then responded to two items that measured perceived difficulty (r = .52, p = .000). They indicated how plausible it would be to follow this diet for the indicated time period (1 = "not plausible at all," and7 = "very plausible") and how easy or difficult it was to think about situations in which they broke the diet in the indicated period (1 = "easy to think about breaking thediet," and 7 = "difficult to think about breaking the diet"). Because items were reverse-coded, a higher score indicates greater perceived difficulty of the diet. Participants then responded to two items measuring confidence (r = .91, p =.000). They indicated how confident they were that they would be able to avoid the food items prohibited in the diet plan (1 = "not at all confident," and 7 = "very confident") and how certain they were that they could avoid the food items prohibited in the diet plan for the indicated duration (1 = "not at all certain," and 7 = "very certain"). Finally, participants completed a ten-item expertise scale we developed specifically for the dieting domain (Cronbach's $\alpha =$.95; for a list of items, see Appendix A).

Results

Likelihood to adopt the diet. We excluded from analyses six participants who indicated having participated in a similar study earlier in the semester and four participants who gave responses more than three standard deviations away from mean key dependent variables. A 2 (frame: 12-month, one-year) \times 2 (personal relevance: low, high) analysis of variance (ANOVA) on adoption likelihood revealed only a two-way interaction (F(1, 81) = 5.08, p < .05). Planned contrasts revealed that when personal relevance was high, likelihood to adopt the diet was higher in the 12-month frame (M = 2.62) than in the one-year frame (M = 1.50; F(1, 81) =4.08, p < .05). However, when personal relevance was low, there was no difference between the 12-month frame (M = 1.65) and the one-year frame (M = 2.23; F(1, 81) = 1.28), p > .10). When we performed the same analysis, controlling for the effect of expertise, the main effect of expertise was significant (F(1, 80) = 13.19, p < .001). More important, when we controlled for the effect of expertise, the two-way interaction between personal relevance and frame was still significant, albeit marginally (F(1, 80) = 3.20, p = .07). This result suggests that personal relevance or involvement has an effect beyond that of expertise.

Perceived difficulty. A 2 (frame: 12-month, one-year) × 2 (personal relevance: low, high) ANOVA on the perceived difficulty scale revealed only a significant two-way interaction (F(1, 81) = 8.04, p < .01). When personal relevance was high, participants perceived the diet as more difficult in the one-year frame (M = 6.47) than in the 12-month frame (M = 5.52; F(1, 81) = 4.67, p < .05). However, when personal relevance was low, there was no difference between the 12-month frame (M = 6.15) and the one-year frame (M = 5.40; F(1, 81) = 3.35, p > .05). The two-way interaction between personal relevance and frame remained significant when we controlled for expertise (F(1, 80) = 6.34, p > .05).

Confidence. A 2 (frame: 12-month, one-year) \times 2 (personal relevance: low, high) ANOVA on confidence scale revealed only a two-way interaction (F(1, 81) = 8.13, p < .01). When personal relevance was high, confidence was

higher in the 12-month frame (M = 2.71) than in the oneyear frame (M = 1.50; F(1, 81) = 5.34, p < .05). However, when personal relevance was low, there was no effect of frame (M_{12months} = 1.58, M_{1year} = 2.40; F(1, 81) = 2.89, p >.05). Moreover, when we controlled for the effect of expertise, the two-way interaction between personal relevance and frame remained significant (F(1, 80) = 6.40, p < .05).

Moderated serial mediation analysis. Our theoretical framework proposes a model in which perceived difficulty and confidence mediate the effect of frame on adoption likelihood, and the path from frame to difficulty is moderated by personal relevance. We conducted a moderated serial mediation analysis to test our predicted framework. We ran three multiple regression models. The first mediator model examined the effects of frame, personal relevance, and their interaction on perceived difficulty. The effect of the twoway interaction on perceived difficulty was significant (b = -1.69, p < .01). The second mediator model examined the effect of perceived difficulty, frame, personal relevance, and the interaction between frame and personal relevance on confidence. In this model, only the effect of difficulty on confidence was significant (b = -.69, p < .001). A third dependent variable model examined the effects of confidence, frame, personal relevance, and the interaction between frame and personal relevance on adoption likelihood. The effect of confidence on adoption likelihood was the only significant effect (b = .41, p < .0005). A bootstrap analysis confirmed that the conditional indirect effect of frame on adoption likelihood, through both perceived difficulty and confidence, was significant when personal relevance was high (95% confidence interval = -.826, -.043) but not significant when personal relevance was low (95% confidence interval = -.003, .652).

Discussion

In Studies 2a and 2b, we observed the effects of duration framing only when the task was personally relevant. We measured (Study 2a) and manipulated (Study 2b) personal relevance in multiple ways. The duration framing effect occurred only when the target was relevant to personal goals: framing did not influence likelihood estimates of participants who reported not being concerned about their BMI. Moreover, duration framing affected judgments pertaining to self but not to others. Participants who were manipulated to have high involvement with the task showed duration framing effects, controlling for task familiarity and expertise.

As we predicted, participants for whom dieting was personally relevant were less likely to adopt the diet when it was described using the one-year frame than the 12-month frame, presumably due to the longer duration perceptions elicited by the year frame. These results further demonstrate that personal relevance can amplify duration framing effects (H_1) .

STUDY 3: BIASED DURATION PERCEPTION INFLUENCES DISCOUNT RATES

Our conceptualization suggests that personal relevance amplifies the duration framing effect because it increases participants' susceptibility to frame-induced differences in perceived duration (H_{2a}). Specifically, we propose that when a plan is relevant to consumers, they will be more likely to perceive a one-year plan as longer than a 12-month plan. In contrast, when the task is not as personally relevant, consumers will be less likely to perceive a one-year plan as longer than a 12-month plan, and the duration framing effect should not manifest.

If the duration framing effect is driven by such biased duration perceptions, we should observe the effects of duration framing in personal finance, a domain in which duration perceptions are of utmost importance. In Study 3, we explore a natural downstream consequence of biased duration perception in financial judgments: intertemporal discount rate. Future outcomes are discounted at a higher rate when the wait seems longer. Zauberman et al. (2009) explain hyperbolic discounting by errors in perceptions of prospective duration. Thus, if the one-year frame is perceived as longer than the 12-month frame, we should observe higher intertemporal discount rates for it. However, this effect should occur only for consumers for whom the plan is personally relevant.

Method

Participants and procedure. Two hundred one participants were recruited from the Amazon Mechanical Turk panel. Participants first completed a separate task about estimating their savings before moving on to the main study about intertemporal discount rates. To assess the personal relevance of financial management, participants were asked to indicate how often they think about managing their finances on a 100-point slider scale anchored by "very infrequently" and "very frequently." Next, we used a wellestablished paradigm to assess the intertemporal discount rate (Rachlin, Raineri, and Cross 1991). Participants were given a series of choices between a smaller, sooner reward and a larger, later reward. The larger reward was \$1,000 in all cases, which was delivered with a delay of either 12 months or 1 year. In all cases, the smaller reward was delivered today, and the order of presentation was sequential from highest to lowest value (\$1000, \$990, \$980, \$960, \$940, \$920, \$900, \$850, \$800, \$750, \$700, \$650, \$600, \$550, \$500, \$450, \$400, \$350, \$300, \$250, \$200, \$150, \$100, \$80, \$60, \$40, \$20, \$10, \$5, \$1, delivered today). The task was terminated when the participant indicated a preference for the larger, later reward. In this task, a participant who is indifferent to receiving \$1000 today and \$1000 in one year is extremely patient and does not require any compensation for the one-year delay. In contrast, a participant who would prefer to have \$1 today rather than \$1000 in one year is extremely impatient, requiring a high compensation for the one-year delay and discounting the future at a very high rate.

Results

We calculated the discount rate (k) for each participant using the following formula:

(1)
$$v_{d} = \frac{v}{(1+kd)},$$

In this formula, v_d is the discounted value of a delayed reward, d is the delay, and k is the discounting rate parameter proportional to the degree of discounting. Three participants gave responses more than three standard deviations away

from the mean, and therefore we excluded them from further analyses. We performed a regression on log-transformed discount rate (k) with the following independent variables: (1) a dummy variable for frame (12 - month = 1, one-year =0), (2) continuous personal relevance score, and (3) a twoway interaction term. The results revealed only a significant two-way interaction between frame dummy variable and personal relevance (b = -.021, t = -2.02, p < .05). To explore the interaction, we examined the effects of frame at one standard deviation above and below the mean personal relevance score. The dummy variable comparing the 12month frame to the one-year frame had a significant effect when personal relevance was high (b = -.78, t = -2.25, p < .05), whereas this dummy variable did not have an effect when personal relevance was low (b = .13, t = .42, p > .1). A spotlight analysis showed that at one standard deviation above mean personal relevance, participants discounted a reward more when it was delayed for one year than for 12 months ($M_{12months} = .06$, $M_{1year} = .29$).³ At one standard deviation below mean personal relevance, the discount rates did not differ across frames ($M_{12months} = .15, M_{1vear} = .12$).

Discussion

Study 3 demonstrates how duration framing and personal relevance can affect discount rates, a judgment closely associated with duration perception. This result suggests that under high personal relevance, one year can be perceived as longer than 12 months. Participants were more willing to wait to receive a larger amount of money when the wait was framed as 12 months than as one year, resulting in lower discount rates.

STUDY 4: EXPLORING THE PROCESS—THE ROLES OF DURATION PERCEPTION AND MENTAL SIMULATION

Study 4 has two aims. First, we directly test the mediating role of duration perception. Second, we test the role of process-oriented mental simulation. A pivotal assumption in our conceptualization is that the effect of personal relevance is caused by process simulation. To test this assumption, we directly manipulated simulation type in this study. We assigned one-third of the participants to the process simulation condition, one-third to the outcome simulation condition, and the final third to a control condition without explicit simulation instructions.

We had three predictions regarding the role of mental simulation. First, if personal relevance leads participants to engage in spontaneous process simulation, under high personal relevance, the duration framing effect should manifest in both the control and process simulation conditions (H_{3a}). Second, when participants are asked to simulate the process mentally, the framing effect should manifest even when the task is not personally relevant (H_{3b}). Finally, because process (not outcome) simulation causes our effect, we do not expect outcome simulation to lead to the duration framing effect, regardless of level of personal relevance (H_{3c}). If all three predictions are empirically supported, we can conclude that the effect of personal relevance is indeed caused by process simulation. Moreover, our test observes whether

the aforementioned pattern is mediated by perceived duration (H_{2a}) and perceived difficulty (H_{2b}).

Method

Participants and procedure. Five hundred twenty-eight participants were recruited from the Amazon Mechanical Turk panel in exchange for a small payment. The study had a 2 (frame: 12-month, one-year) \times 3 (simulation: no-simulation control, process simulation, outcome simulation) \times 2 (personal relevance: low, high) between-subjects design. As a manipulation of frame, participants were presented with either a one-year diet plan or a 12-month diet plan.

Process versus outcome simulation. To manipulate mental simulation, we adopted instructions from prior research (Escalas and Luce 2003, 2004). Specifically, participants were asked to mentally simulate either the process of following the diet (process simulation condition) or the end benefits of the diet (outcome simulation condition) while studying the plan. Detailed instructions appear in Appendix B. Participants in the no-simulation control condition did not receive any simulation instructions.

After reviewing the diet plan, participants indicated how likely they were to adopt this diet (1 = "not likely at all," and 7 = "very likely"). Participants next responded to two items that aimed to measure perceived difficulty (Cronbach's $\alpha = .75$). They indicated how plausible it would be to follow this diet for the indicated time period (1 = "not plausible at all," and 7 = "very plausible"), and how easy or difficult it was to think about situations where they broke the diet in the indicated period (1 = "easy to think about breaking the diet," and 7 = "difficult to think about breaking the diet"). Both items were reverse-coded, and thus a higher score on this scale indicates greater perceived difficulty of the diet. Then, participants indicated their subjective assessment of how long 12 months and one year seem relative to each other (1 = "12 months feel longer," 4 = "they feel equally long," and 7 = "one year feels longer"). Finally, we used the natural frequency of engaging in the task as a measure of personal relevance. We measured whether participants were frequent dieters on a dichotomous scale (yes/no) and used this as the third factor in our analysis.

Results

Likelihood to adopt the diet. Of the 528 participants, 41 failed to complete the study, and therefore we conducted the analyses on the remaining 487 participants. A 2 (frame: 12-month, one-year) × 3 (simulation: no-simulation control, process simulation, outcome simulation) × 2 (personal relevance: low, high) ANOVA on adoption likelihood revealed a main effect of simulation (F(2, 475) = 5.99, p = .003), a main effect of personal relevance (F(1, 475) = 67.18, p = .000), and a two-way interaction between frame and simulation (F(2, 475) = 7.09, p = .001). Most important, the predicted three-way interaction was significant (F(2, 475) = 3.22, p = .041) (see Figure 4, Panel A).

Planned contrasts revealed that when personal relevance was high, likelihood to adopt the diet was greater in the 12month frame than in the one-year frame in the no-simulation control condition (F(1, 475) = 6.86, p = .009) and the process simulation condition (F(1, 475) = 4.88, p = .028), suggesting that when personal relevance is high, consumers spontaneously engage in process simulation. In contrast,

³Although we performed this analysis on log-transformed discount rates, the means presented here reflect raw discount rates (k) for ease of explication.





No Simulation Process Simulation Outcome Simulation No Simulation Process Simulation Outcome Simulation Low Personal Relevance High Personal Relevance

1

when personal relevance was low, although the framing effect did not manifest in the no-simulation control condition (F(1, 475) < 1), it did manifest in the process simulation condition (F(1, 475) = 4.04, p = .046). These results support our claim that process simulation can cause the duration framing effect even when personal relevance is low.

Outcome simulation did not have the same effect as process simulation. Under conditions of outcome simulation, when personal relevance was low, the effect of framing was not significant (F(1, 475) = 1.16, p > .1); when personal relevance was high, the effect directionally reversed but did not reach conventional levels of significance (F(1, 475) = 3.24, p = .08).

Taken together, these results show that participants for whom dieting was personally relevant had a natural tendency to simulate the process of being on the diet even without instructions to do so. When dieting was not personally relevant, participants did not spontaneously engage in process simulation. Under these circumstances, the framing effect did not manifest unless participants were explicitly instructed to engage in process simulation. Regardless of the level of personal relevance, the framing effect did not manifest under outcome simulation instructions. These results show that process simulation (but not outcome simulation) is necessary for the observed framing effects to manifest, providing strong support for H_{3a-c} .

Duration perception. A 2 (frame: 12-month, one-year) × 3 (simulation: no-simulation control, process simulation, outcome simulation) × 2 (personal relevance: low, high) ANOVA on relative time perception measure revealed a main effect of frame (F(2, 475) = 16.18, p = .000), a main effect of personal relevance (F(1, 475) = 13.42, p = .000), and a two-way interaction between time frame and simulation (F(2, 475) = 2.89, p = .05). These effects were qualified by a three-way interaction (F(2, 475) = 3.92, p = .021).

When personal relevance was high, participants perceived one year to be longer than 12 months in the no-simulation control condition (F(1, 475) = 11.22, p = .001) and the process simulation condition (F(1, 475) = 8.70, p = .003). In contrast, when personal relevance was low, participants perceived one year to be longer than 12 months in the process simulation condition (F(1, 475) = 3.65, p = .05) but not in the control condition (F(1, 475) < 1) (see Figure 4, Panel B).

Under outcome simulation, there was no difference in perceived duration across frames in the high-personal-relevance condition (F(1, 475) < 1) or the low-personal-relevance condition (F(1, 475) = 1.66, p > .1). Thus, it appears that process simulation plays a critical role because it increases consumers' responsiveness to differences in perceived duration across frames, whereas outcome simulation does not.

Perceived difficulty. The two items that assess perceived difficulty were highly correlated (r = .847); therefore, we combined them in an index. A 2 (frame: 12 months, one year) × 3 (simulation: no-simulation control, process simulation, outcome simulation) × 2 (personal relevance: low, high) ANOVA on this index revealed a main effect of time frame (F(2, 475) = 4.29, p = .039) and a main effect of personal relevance (F(1, 475) = 41.96, p = .000). Consistent with our prediction, the three-way interaction was significant (F(2, 475) = 3.58, p = .029).

Planned contrasts reveal that when personal relevance was high, participants found it more difficult to be on the oneyear diet than the 12-month diet in the no-simulation control condition (F(1, 475) = 7.34, p = .007) and the process simulation condition (F(1, 475) = 3.72, p = .05). In contrast, when personal relevance was low, participants found it more difficult to be on the one-year diet than the 12-month diet in the process simulation condition (F(1, 475) = 5.06, p = .025) but not in the no-simulation control condition (F(1, 475) <1) (see Figure 4, Panel C). Under outcome simulation, there was no difference in difficulty across frames in the highpersonal-relevance condition (F(1, 475) = 1.66, p > .1) or the low-personal-relevance condition (F(1, 475) < 1). These results provide evidence that framing can influence perceived plan duration, and perceived plan duration in turn can signal the difficulty of the plan.

Mediated moderation analysis. We conducted a mediated moderation analysis with two serial mediators to determine whether duration perception and perceived difficulty mediate the effect of the three-way interaction among frame, personal relevance, and simulation type on adoption likelihood. We ran three multiple regression models. The first mediator model examined the effects of frame, personal relevance, simulation type, and their higher-level interactions on perceived duration. This analysis revealed significant effects of frame (b = 2.42, p = .0001), simulation type (b = .68, p =.05), personal relevance (b = 1.01, p = .0002), frame × simulation type (b = -1.39, p = .0029), frame × personal relevance (b = -1.16, p = .0013), and simulation type × personal relevance (b = -.413, p = .037). Most important, the effect of the three-way interaction on perceived duration was significant (b = .760, p = .005).

The second mediator model examined the effects of frame, personal relevance, simulation type, and their higherorder interactions, as well as duration perception on perceived difficulty. This analysis revealed significant effects of frame (b = 2.24, p = .008); simulation type (b = 1.045, p =.023); personal relevance (b = 1.65, p = .0000), frame × simulation type (b = -1.53, p = .0135); frame × personal relevance (b = -1.14, p = .018); simulation type × personal relevance (b = -.613, p = .0196); and the three-way interaction among frame, personal relevance, and simulation type (b = .797, p = .026). Importantly, the effect of duration perception on perceived difficulty was significant (b = .220, p = .0003).

The third dependent variable model examined the effects of frame, personal relevance, simulation type, and the interactions between these factors, as well as duration perception and perceived difficulty on adoption likelihood. This analysis revealed a significant, negative effect of personal relevance (b = -.873, p = .009) and a significant, negative effect of difficulty perception (b = -.724, p = .0000).

A bootstrap analysis confirmed that the conditional indirect effect of the three-way interaction among frame, personal relevance, and simulation type on likelihood through duration perception was significant (95% confidence interval = -.78, -.14). These results establish that (1) personal relevance moderates the observed framing effects because it triggers process simulation (H_{3a-c}) and (2) the frame-induced duration and difficulty perceptions mediate the moderating role of personal relevance (H_{2a-b}).

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GENERAL DISCUSSION

Consumers frequently consider plans that promise improvements in areas such as dieting and saving. Holding objective duration constant, we find that framing of the duration of these plans can influence expectations of success. Compared with a 12-month plan, a one-year plan is less likely to be adopted because it can be perceived as longer (and for self-improvement plans, more difficult). More important, we show that personal relevance moderates this duration framing effect. We find that personal relevance amplifies this effect because it prompts processfocused simulation of the plan, consequently amplifying the effects of frame-contingent duration and difficulty cues. We establish the robustness of the effect in five studies using plans in different domains, different criterion variables, and different operationalizations of personal relevance.

Contribution and Relationship to Previous Findings

Our findings build on the literature on framing effects and extend it by identifying (1) process simulation triggered by personal relevance as a moderator and (2) frame-induced duration perceptions as mediators for the observed framing effects. Research on framing effects has shown that estimates are susceptible to the length of an estimation window (e.g., Chandran and Menon 2004; Gourville 1998) and can influence plans (Ülkümen, Thomas, and Morwitz 2008), purchase intentions, and behaviors (Hamilton, Ratner, and Thompson 2011). Unlike most studies in this literature stream, we hold the estimation period constant while changing its framing. Previous literature has identified frameinduced confidence as an important factor influencing the effects of framing on judgments. For example, Zhang and Schwarz (2012) show that the way speakers frame a prediction can influence listeners' confidence in its accuracy. Ülkümen, Thomas, and Morwitz (2008) demonstrate that confidence can be a determinant of framing effects. We add to these findings by identifying frame-induced duration and difficulty perceptions as two additional mediators and personal relevance as a moderator of framing effects (see Figure 1). These results establish high personal relevance as an important condition under which frames influence judgments.

Our research also furthers our understanding of mental simulations. Although the consequences of using process versus outcome simulations have been studied, our knowledge of the factors that naturally trigger these simulations is limited (for an exception, see Zhao, Hoeffler, and Zauberman 2011). We show that personally relevant plans may spontaneously trigger process-focused (as opposed to outcomefocused) simulation.

In this article, we treat personal relevance as a situational factor that changes as a function of the decision environment and the decision maker's goals. If, at a particular moment, a task is related to personal goals or elicits more personal connections, we consider it personally relevant. Given the importance of the personal relevance construct in our conceptualization, it is useful to differentiate this construct from other related constructs, such as involvement. Dual process theories in attitudinal research define involvement as the motivation to expend the effort required to elaborate on messages (e.g., Chaiken 1980; Petty and Cacioppo 1979). According to these models, personal relevance is just one of the factors that can lead to high involvement. For example, personal relevance, task importance, accountability for one's judgments, and outcome dependency are among situational factors, while need for cognition and desire for control are among dispositional factors that can promote involvement. Following this logic, we contend that although all personally relevant tasks elicit high involvement, high involvement with a task does not necessarily stem from personal relevance. Therefore, our results should be interpreted as moderation by personal relevance and not necessarily by involvement. Further research should examine whether other antecedents of involvement would also enhance framing effects.

Our finding that personal relevance can *exacerbate* framing effects challenges the view that cognitive biases are driven by lack of involvement with the task (Smith 1985). Instead, these results are in line with previous findings that demonstrate disruptive effects of engaging in conscious deliberation (e.g., Dijksterhuis et al. 2006).

An important part of our theoretical framework is the idea that mentally simulating plans should amplify the impact of frame-contingent duration and difficulty perceptions. These findings are compatible with the notion that process (vs. outcome) simulation is associated with greater difficulty perceptions (Thompson, Hamilton, and Petrova 2009). Because process simulation involves thinking about the concrete details of implementing an action, one can similarly compare it with setting implementation intentions. In this sense, our findings are in line with a recent body of literature illustrating that concrete plans and setting implementation intentions can make people focus on cues that signal task difficulty. For example, Thomas and Tsai (2012) find that psychological proximity increases perceived task difficulty and anxiety. In a similar vein, Ayduk and Kross (2008) find that self-immersed thinking increases feelings of anxiety. Furthermore, these feelings of difficulty and anxiety have been linked to negative effects on motivation and goal achievement. For example, when multiple goals are involved, specific plans regarding goal pursuit can highlight the difficulty of following these goals, thus undermining success (Dalton and Spiller 2012; Soman and Zhao 2011). Likewise, concrete planning can subvert goal pursuit for those who are not in good standing with respect to their goal because it can create emotional distress (Townsend and Liu 2012). Ülkümen and Cheema (2011) show that although specific goals increase savings for consumers who focus on the reason(s) to save, they actually decrease savings for those who focus on how to save. This happens because the difficulty of reaching specific goals becomes demotivating under a concrete mind-set, impeding goal attainment. Our findings add to this literature, which demonstrates that difficulty perceptions evoked by concrete plans or implementation intentions can hinder goal attainment.

Boundary Conditions

Type of task. We expect the framing bias to occur with any event or task that requires (1) self-regulation and (2) continuous (rather than a one-time) effort over a certain period. Empirical evidence from our pretest (see Table 1) and other studies suggest that, all else held constant, consumers spontaneously deem a self-control-related task to be

more difficult when it is described in a frame perceived as longer (vs. shorter) because it is more difficult to sustain self-control for a longer time.

We demonstrate that the effect holds with various tasks such as avoiding high-calorie foods with a strict diet and postponing gratification in a discount delay task to receive a larger, later monetary reward rather than accepting a smaller, sooner reward. Other examples that could be used are energy conservation plans, loyalty reward programs, compliance with medication regimens, and addiction cessation programs.

Different durations and frames. Thus far, we have demonstrated our effect using the duration of one year framed in three different ways (one year, 12 months, 365 days). In a study not reported here, we replicate the effect with two different frames of a different duration (ten years, one decade). This study shows that participants for whom saving is personally relevant expect to save more when a saving plan is framed as a ten-year plan as opposed to a onedecade plan. In contrast, framing does not influence consumers for whom saving is not personally relevant.

Any frame describing a time period involves a time unit and a number to quantify this unit, and previous research has shown that consumer reaction to frames depends on a balance between the numeracy effect and the effect of the unit. For example, one year is perceived as a longer time period than 12 months because the year unit is large enough to override the effect of the larger number. However, when comparing one year with 365 days, the latter is perceived as longer because the numeracy effect overrides the effect of the unit. We establish the relative prevalence of these two effects empirically in our pretest. Our main focus is studying the conditions under which these framing effects manifest rather than understanding the relative influence of different framing components.

Other Possible Accounts

It could be argued that the moderating role of personal relevance is not due to greater susceptibility to the impact of duration frames under high relevance but rather to more noisy responses under low relevance. When data from Study 4 are submitted to Levene's test of equality of variances, the results suggest that variance of responses does not differ across high (M = 3.79) and low (M = 3.14) relevance conditions (p > .05). Furthermore, the mediation analysis in Study 4 shows that perceived duration and difficulty mediate the moderating role of self-relevance. Thus, our data show a consistent pattern with a causal structure rather than a random pattern.

It is also possible to argue that our personal relevance construct taps into task expertise or familiarity rather than involvement. In most of our studies, we measure selfrelevance by assessing participants' concern with, or their frequency of thinking about, an issue (e.g., their BMI, their finances). A low rating on these measures may not only indicate low personal relevance of dieting but also reflect lack of familiarity with it. To disentangle these accounts, we manipulated personal relevance as self/other perspective (Study 2a) and as task involvement prompted by personal relevance (Study 2b). We show that personal relevance, when manipulated as such, can moderate duration framing effects, controlling for task familiarity and expertise. These results demonstrate that personal relevance affects framing effects through increased involvement with the task rather than due to expertise or familiarity effects.

Managerial Implications

Our results suggest that market research studies may not reveal existing framing effects if they are conducted with participants who are not concerned about the product being studied. When promoting services, it may be best to select frames that are perceived as shorter for effortful or painful experiences (e.g., an unpleasant treatment). Given that decisions that are less personally relevant to consumers are less influenced by framing, marketers can also deemphasize relevance, for example, by wording the message in terms of other consumers.

APPENDIX A: STUDY 2B-DIETING EXPERTISE SCALE ITEMS

- How knowledgeable are you about dieting? (1 = "not knowledgeable at all," and 7 = "very knowledgeable")
- How knowledgeable are you about different diets out there? (1 = "not knowledgeable at all," and 7 = "very knowledgeable")
- How much experience do you have with dieting? (1 = "I am not experienced at all," and 7 = "I have a lot of experience")
- 4. How frequently are you on a diet? (1 = "almost never," and 7 = "almost always")
- 5. How frequently do you restrict your calorie intake? (1 = "almost never," and 7 = "almost always")
- 6. How experienced are you with the difficulties of being on a diet? (1 = "I am not experienced at all," and 7 = "I have a lot of experience")
- 7. How knowledgeable are you about the amount of effort dieting requires? (1 = "not knowledgeable at all," and 7 = "very knowledgeable")
- How familiar are you with the challenges that can come up during a diet? (1 = "not familiar at all," and 7 = "very familiar")
- 9. How well do you understand the process of being on a diet? (1 = "not very well," and 7 = "extremely well")
- 10. To what extent do you relate to the challenges of being on a diet? (1 = "not at all," and 7 = "to a great extent")

APPENDIX B: STUDY 4—MENTAL SIMULATION INSTRUCTIONS

Process Simulation Instructions

While you are reviewing the diet plan on the following screen, we would like you to imagine the PROCESS of following this diet. As you imagine, focus on how you would incorporate the diet into your daily routine. Imagine how you would feel if you were on this diet EVERY DAY. That is, focus on the process of avoiding the foods that are restricted by this diet—focus on how you would feel as you followed the diet.

Outcome Simulation Instructions

While you are reviewing the diet plan on the following screen, we would like you to imagine the END BENEFITS that you would receive from this diet. As you imagine, focus on the benefits you would gain from the diet. Imagine how you would feel if you achieved your ideal body mass index as a result of the diet. That is, focus on the end result of this diet—focus on how you would feel as a result of the diet.

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