The different roads not taken:

Considering dissimilar alternatives motivates goal persistence

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*** First Version: MAY, 2018***

*** This Version: NOVEMBER, 2018***

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Abstract

The previously unchosen options that people consider shapes how they interpret what they did choose. Beyond previous research showing that foregone alternatives influences consumers' experiences of a chosen option, the current research suggests that how consumers mentally construe goal-inconsistent alternatives they could have chosen impacts how they evaluate their goal-consistent choice, which will in turn impact their motivation to continue goal-directed behaviors subsequently. Specifically, we find that when consumers consider having foregone dissimilar (vs. similar) goal-inconsistent alternatives that they could have chosen instead of the goal-consistent actions they did take, they believe that they have made higher impact on their active goals. As a result, they are then more likely to subsequently make goal-consistent choices. However, considering dissimilar (vs. similar) unchosen options only impacts goal perceptions when the focal goal is subjectively important. Our findings hold across different types of goals (saving vs. spending: study 1, donating vs. spending: study 2, healthy vs. tasty food: studies 3 to 5), and extend to real choices (study 5).

Keywords: goals, motivation, goal progress perception, foregone alternatives, diversity

Imagine that you've recently decided to eat healthier, and you are now deciding which to have for dinner, either whole-grain pasta with mushrooms or deep-fried chicken. You think back to your snack this afternoon, when you had chosen a healthy option, a green apple. How would you interpret this prior goal-consistent choice, and how would that interpretation affect the current choice?

We propose that how the previous healthy choice is interpreted depends on which foregone alternatives to the chosen snack are actively considered. When people think about their prior decisions, they can consider different kinds of counterfactual alternatives that could have been chosen instead. For example, a person who chose the green apple as a snack may view that choice in light of a diverse set of alternatives: they could have chosen dark chocolate chip cookies instead, or chosen a glazed donut, or chosen a banana nut muffin. Another person who chose the green apple may instead view that choice in light of a narrow range of foregone alternatives that are similar to each other: they could have chosen dark chocolate chip cookies, or white chocolate chip cookies, or M&M cookies. We propose that thinking of having previously made a goal-consistent choice as either overcoming a diverse set of different tempting alternatives, or a narrow set of similar tempting alternatives, will impact people's perception of their goal progress, with consequences for the choices they currently face.

When people choose one option from a choice set, they have, by definition, foregone the other options. A wide range of consumer research has demonstrated that how people think about unchosen options can shape how they experience what they did choose (Carmon, Wertenbroch, Zeelenberg 2003; Dhar and Wertenbroch 2007; Sagi and Friedland 2007). However, less is known about whether and how considering past foregone options influences ongoing goal-

pursuit, where making consistent, repeated goal-congruent choices is critical for successful goal attainment.

People pursuing a goal often face conflict, needing to make choices between goal-consistent options (e.g., “virtues”) and goal-inconsistent options (“vices”). When people choose a goal-consistent choice, they typically make progress that gets them closer to achieving their goal. The degree of realized goal progress is determined by the option they have chosen, regardless of the alternatives. For example, progress towards achieving a weight loss goal is determined by calories actually consumed, and progress towards a savings goal is determined by the amount of money actually saved, regardless of what the alternatives were. However, without clear objective markers, it can be difficult for people to assess how much actual progress towards the goal has been caused by a single decision. Thus, people may infer their progress, via an inferential self-perception process (Bem 1972), from their own action, which includes a comparison to the salient counterfactual actions. As a result, people may view the same goal-consistent choice as representing more goal progress when they consider a more diverse set of foregone alternatives, resulting in more motivation to continue making goal consistent choices.

In contrast with prior research that explored the effect of variety among means that are conducive to goal attainment (e.g., three protein bars with the same vs. different flavors in pursuit of a fitness goal; Etkin and Ratner, 2012; 2013), our research focuses on the (dis)similarity among goal-inconsistent alternatives that consumers did not choose (e.g., three sweet snacks with the same vs. different flavors).

In our studies, we test the effect of considering different sets of foregone alternatives to a prior choice on perceived goal progress and current choices. Participants who either imagined, recalled, or actually engaged in a goal-consistent initial action were prompted to consider either a

set of similar or a set of dissimilar goal-inconsistent alternatives they could have chosen instead. Across three different types of goals (saving money: study 1; donating: study 2; health: studies 3 to 5), we found that when participants considered more dissimilar foregone alternatives, they reported more impact on their goal progress and were then more likely to make subsequent goal-consistent choices. Goal importance was a necessary pre-condition. In studies 1, 4, and 5, we used goals pre-tested as widely held and we manipulated goal importance directly in study 2 and measured goal importance in study 3. Considering dissimilar alternatives influenced goal perceptions only when participants endorsed the goal as personally important. Consideration of past foregone alternatives was found to impact both hypothetical choices (study 4) and real choices in a field setting (study 5).

THEORETICAL DEVELOPMENT

Foregone alternatives in goal-pursuit

Consumers are often sensitive to contextual cues, both when making choices (Bettman, Luce and Payne 1998; Johnson et al. 2012) and in post-choice evaluation (Chernev, Böckenholt and Goodman 2015; Hsee and Leclerc 1998). The composition of options present in a choice set impacts the attractiveness of a given option (Huber, Payne and Puto 1982; Sela, Berger and Liu 2009; Simonson 1989) and whether a choice is made (Dhar 1997; Tversky and Shafir 1992). Likewise, the structure and composition of the choice set in a past choice impacts post-choice evaluations, such as satisfaction (Houston and Sherman 1995; Iyengar and Lepper 2000; Kim, Shin and Han 2014; Mogilner, Rudnick and Iyengar 2008).

Counterfactual consideration of foregone alternatives, in particular, has been theorized as influencing post-choice attitudes (Inman, Dyer, and Jia 1997). For instance, perceiving a choice as involving higher opportunity cost (i.e., perceiving foregone alternatives as more valuable) causes consumers to value the chosen option more, which in turn, motivates them to make use of their chosen opportunity (Weiss and Kivetz 2014). By contrast, not considering foregone options (i.e., experiencing choice-closure) also increases consumers' satisfaction with their choice (Gu, Botti and Faro 2013). Thus, considering the alternative choices they could have made may influence individuals' evaluations about their own choice, with consequences for future persistence (Parker and Schrift, 2011; Schrift and Parker, 2014).

Building on these prior findings, we posit that which foregone alternatives people consider may affect how they evaluate their goal progress, with important motivational consequences for current choices. Specifically, we propose that the similarity of considered foregone alternatives to each other is an important cue to how people perceive their goal progress from making the right choice.

Similar vs. dissimilar foregone alternatives

A prior literature has demonstrated that the degree and nature of shared vs. unique features of alternatives can systematically impact decision-making (see Sherman, Houston and Eddy 1999 for a review). For example, when evaluating alternatives, shared features among alternatives are underweighted whereas unique features receive greater attention, influencing the attractiveness of a set of alternatives (Dhar and Sherman 1996).

When people recall the foregone alternatives from a previous choice, if the alternatives are similar one another, with overlapping positive features, individuals are likely to feel that what they have given up are interchangeable *units* of the same desirable attributes. In our earlier

example, having chosen the green apple snack would be seen as having foregone cookies. However, when people instead consider having foregone dissimilar alternatives, individuals would pay attention to each of the distinct positive features associated with each alternative and feel they have given up multiple *types* of desirable attributes. Thus, having chosen the green apple snack would be seen as having foregone not only cookies, but also donuts and muffins. In other words, foregoing similar alternatives may be perceived as a single sacrifice of the amount of one type of consumption, whereas foregoing dissimilar alternatives may be perceived as having made multiple sacrifices of different types of consumption.

This difference in the foregone alternatives under consideration can, in turn, change the perceived impact of the sacrifice on goal progress. Prior research has shown that consumers evaluate sacrificing food types (i.e. foregoing different foods) as helping a weight-related health goal more than sacrificing food quantity of single type (i.e. foregoing more of the same food, in our framework), holding calorie consumption constant (Haws and Liu 2016). Consistent with a large literature on scope insensitivity (Hsee and Zhang 2010), particularly for affective stimuli (Hsee and Rottenstreich 2004), consumers are relatively insensitive to changes in the quantity of food, but perceive differences in food type as affecting their health goal (Liu et al. 2018).

Normatively, the diversity of the unchosen alternatives should not affect the perceived quality of the decision, unless it changes the value of the second-best alternative, and thus, changes the opportunity cost. However, choosing one option can be perceived as foregoing all the alternatives that were offered in a choice set, not just foregoing the one next-best alternative that would have been chosen instead (Schwartz 2004). Supporting this notion, Sagi and Friedland (2007) showed that the more diverse the foregone alternatives are, the more regret people feel about their choice. For example, in one study, participants made a blind choice

without knowing what the alternatives were, and all participants were informed they had chosen a \$50 bill. The participants who discovered that the unchosen alternatives were dissimilar items with few overlapping features (e.g., mini-stereo set and microwave oven; \$300 value each) regretted their choice more than participants who were shown unchosen items that were more similar to each other (e.g., mini-stereo set and videotape player/recorder; \$300 value each).

These findings suggest that when people consider having foregone a set of goal-inconsistent alternatives in a past goal-consistent choice, their subjective perception of how much has been foregone would depend on the similarity among the foregone alternatives. Specifically, the perceived impact of foregoing similar alternatives would be seen as smaller than foregoing dissimilar alternatives. Due to diminishing sensitivity, the marginal impact of considering foregone options would decrease when it is perceived as foregoing multiple units of the same attribute, but not when perceived as foregoing different types of attributes. Therefore, even having made the same goal-consistent choice, that yields the same amount of *objective* goal progress, greater variety among the past counterfactual alternatives that a person has in mind would make people feel that they had foregone more, giving up on different types of desirable attributes they could have enjoyed. We posit that this difference in perceived sacrifice would not only increase the subjective impact of the past goal-consistent choice on overall goal progress, but also motivate goal-consistent choices in the present.

Impact on subjective goal progress and subsequent motivation

Accumulated progress toward a goal increases consumers' motivation in goal-pursuit. Initial research in animal behavior (Hull 1932; 1934; Miller 1944) and more recent research on human decision-making (Cheema and Bagchi 2011; Förster, Higgins and Idson 1998; Kivetz, Urminsky, & Zheng, 2006; Nunes and Drèze 2006) has demonstrated a goal gradient, such that

motivation increases with proximity to a goal. In particular, Kivetz et al (2006) demonstrated that consumers invest more effort in goal pursuit (repurchasing coffee sooner, investing more effort and persisting longer in an evaluative task) with greater perceived progress towards the goal. Critically, they demonstrate that even cues signaling an illusion of goal progress (e.g., providing free loyalty program stamps while holding total requirements constant) boost motivation.

Recent research has focused on how differences in subjective consideration of goal progress influence motivation, such that consumers are more motivated to act when the action is seen as having a larger subjective impact on their goal pursuit. People assess their goal progress relative to reference points (Heath, Larrick and Wu 1999). During goal-pursuit, people are more motivated when their attention is directed to cues that make the marginal impact of their action appear relatively larger (Koo and Fishbach 2012). In contrast, people tend to lose their motivation when the perceived marginal impact of goal progress becomes less salient. For instance, people show decreased motivation when they are midway through goal pursuit (i.e., “stuck in the middle”, Bonezzi, Brendl and De Angelis 2011) or as they move away from the initial state when pursuing a goal without a clear end-point (Wallace and Etkin 2017).

These findings suggest that when consumers perceive their prior goal-consistent action as having resulted in more goal progress, they will be more motivated to maintain goal pursuit. We propose that even when two people make the same goal-consistent choice, differences in how they think of the foregone alternatives as similar (vs. dissimilar) could yield less (vs. more) perceived impact of the choice on goal progress, reducing (vs. increasing) subsequent motivation. Notably, despite the importance of subjective impact on goal progress for consumers’ motivation, little is known about how consumers’ evaluations of foregone alternatives from past choices affects their goal-related perceptions and current motivation.

Goal importance as a necessary condition

Lastly, we identify goal importance as a potentially necessary condition. Past research has shown that when a goal is considered more important, the goal is more likely to be activated by temptations (Fishbach et al. 2003) and people exert more self-control, leading to greater performance (Latham, Erez and Locke 1988; Locke and Latham 2002; Sue-Chan and Ong 2002). Furthermore, people are more likely to keep pursuing the goal after an initial goal-consistent activity when they actively endorse the focal goal (Zhang et al. 2010).

Furthermore, when a goal is personally important, people are more motivated to process information, amplifying the impact of contextual and peripheral cues (Ülkümen and Thomas 2013). For example, people who had dieting goals were more sensitive to contextual cues in duration information. In addition, when evaluating personally relevant tasks that involved self-regulation, consumers tended to focus on and simulate process (e.g., the process of avoiding unhealthy foods) more than outcome (e.g., the end benefits of achieving ideal body mass index). Building on these findings, we propose that the effect of foregone alternative diversity would be stronger among those people who endorse the associated goal and perceive it as personally important, and who therefore will be more likely to focus on contextual information, such as the foregone alternatives. However, those who do not see the focal goal as personally important would be less likely to engage in process simulation and would pay less attention to the variety of counterfactual alternatives. Thus, we predict that considering a diverse set of foregone alternatives would enhance subjective impact of a prior choice and boost the subsequent motivation to engage in further goal-consistent actions primarily among consumers who see the focal goal as important.

Next, we present five experimental studies that collectively test our entire conceptual framework. We first test whether diverse foregone alternatives yield higher subjective impact on progress in savings goals, using recall of actual past choices (study 1). Next, we test the moderating role of goal importance, both by manipulating the personal importance of a focal goal (donating to charities, study 2) and by measuring individual differences in people's pre-existing health goal importance (consuming low-calorie foods, study 3). Study 4 extends our findings from goal perceptions to subsequent goal-related hypothetical food decisions. Finally, in study 5, we test the effect of considering diverse foregone options in a field setting involving both a real initial goal-congruent action (gym exercise) and a consequential food choice. Across the studies, we find that considering more diverse forgone past alternatives increases consumers' evaluations of goal progress and increases goal-consistent behavior. We rule out multiple alternative explanations involving affective consequences of the past choice, including choice satisfaction and choice difficulty.

STUDY 1: CONSIDERING DISSIMILAR ALTERNATIVES LEADS TO GREATER SUBJECTIVE IMPACT

Our primary objective in study 1 was to test the basic effect of option diversity on the subjective impact of a goal-consistent choice. We employed saving (vs. spending) as a widely shared goal. In a pretest ($N = 142$, see Online Appendix A), 96% of people indicated they currently endorse saving as an active personal goal.

Method

We collected 120 valid completed surveys from participants in the United States (53% male, $M_{\text{age}} = 41.72$) on Amazon Mechanical Turk (MTurk). In all the online studies we conducted, we excluded records with duplicate IP addresses or from participants who failed an attention check, prior to analysis. Full survey stimuli for all studies are presented in the online appendix, and all data will be made publicly available via OSF.

All participants were first asked to recall and briefly explain a recent experience when they were faced with a spending temptation involving a meaningful amount of money but they had ultimately decided not to spend it. They wrote down how they wanted to spend the money and the approximate amount of money they had saved. Next, they were asked to list two other ways that they could have spent the same amount of money for themselves. Then participants were randomly assigned to one of two conditions. In the similar alternatives condition, they were asked to think about and describe how the three ways to spend the money are similar to one another. In the dissimilar condition, they described how the alternatives are dissimilar from one another. As a manipulation check for the option diversity manipulation, participants indicated the extent to which they agreed with the following statements on a 7-point scale (1 = *Strongly disagree*, 7 = *Strongly agree*): (1) “Alternatives overlap in term of what needs they meet” (reverse-coded); (2) “All of the alternatives are more or less the same” (reverse-coded); (3) “Each alternative satisfies different desires I want to fulfill”.

After this experimental manipulation, participants rated how much of (1) an achievement, (2) contribution, or (3) progress they think their choice to save (rather than spend) made towards their savings goal (1 = *None*, 7 = *A lot*). These three measures were averaged into a subjective impact score. In order to confirm that participants actively endorsed the savings goal, we asked them to indicate the extent to which they agreed with the following statements on a 7-point scale

(1 = *Strongly disagree*, 7 = *Strongly agree*): (1) “Saving money is very important to me”; (2) “I am highly conscious of how and where I spend my money”; (3) “I am highly active in my pursuits toward financial planning”; (4) “I try to save money as much as I can”; (5) “I save money on a regular basis.” Finally, they indicated how difficult they found it to recall their past decision not to spend money, as well as their gender and age for demographic information.

Results

Consistent with the results of the pretest, the composite score of savings goal importance ($\alpha = .84$) revealed that participants considered saving to be an important and active goal ($M = 5.88$ out of 7, $SD = .97$), rating it significantly above the midpoint of the scale (4) on average ($t(119) = 21.18$, $p < .001$). As we intended, participants in the dissimilar condition indicated that the alternatives they had generated were more diverse than did the participants in the similar condition. Due to the low internal consistency among the three manipulation check measures ($\alpha = .49$), however, we report the results separately. Participants in the dissimilar condition, compared to those in the similar condition, perceived the alternatives as less overlapping ($M_{\text{similar}} = 4.56$, $SD_{\text{similar}} = 1.38$, $M_{\text{dissimilar}} = 3.39$, $SD_{\text{dissimilar}} = 1.73$; $t(118) = 4.11$, $p < .001$), as less similar ($M_{\text{similar}} = 3.69$, $SD_{\text{similar}} = 1.66$, $M_{\text{dissimilar}} = 2.38$, $SD_{\text{dissimilar}} = 1.34$; $t(118) = 4.72$, $p < .001$), and as fulfilling different desires more ($M_{\text{similar}} = 5.00$, $SD_{\text{similar}} = 1.46$, $M_{\text{dissimilar}} = 5.91$, $SD_{\text{dissimilar}} = 1.18$; $t(118) = 3.73$, $p < .001$).

To test our main hypothesis, we computed a composite score ($\alpha = .92$) reflecting the subjective impact of a goal-consistent choice. Participants in the dissimilar condition reported a greater impact of their past goal-consistent choice on their goal than did participants in the similar condition ($M_{\text{similar}} = 4.37$, $SD_{\text{similar}} = 1.37$, $M_{\text{dissimilar}} = 4.99$, $SD_{\text{dissimilar}} = 1.23$; $t(118) = 2.60$, $p = .011$). The effect of foregone-alternative diversity on the subjective impact remained

significant controlling for the dollar amount saved and the recall task difficulty ($\beta = .58$, $t(116) = 2.44$, $p = .016$).

Discussion

Study 1 provides initial evidence supporting our hypothesis that how people consider foregone options influences the perceived impact of their choice. When people thought about having foregone dissimilar goal-inconsistent alternatives that they could have enjoyed, they felt their choice had made a greater impact on their focal goal than when they thought about having foregone a set of similar alternatives. In the current study, participants generated alternatives to the past choice retrospectively, and merely perceiving more variety among the options afterwards heightened the subjective impact of the past choice on the overall goal. These results suggest that consumers' evaluations about their goal-consistent choice can be differed by changing how they *mentally construe* a set of alternatives they have foregone, no matter which alternatives they *actually* have foregone at the moment of the decision or how much the alternatives *objectively* differ one another.

In a similar study, we found that the effect of option diversity persists not only when participants recalled their actual past choice but also when they imagined their choice in a hypothetical scenario (See Online Appendix C). Participants first thought about similar or dissimilar ways to spend money for themselves and imagined they had decided to save an unexpected income instead of spending it on one of the alternatives they had previously listed. Although they made the same goal progress (by saving the same amount of money), participants who considered having foregone dissimilar alternatives indicated greater subjective impact on their savings goal than did those who considered similar alternatives ($M_{\text{similar}} = 5.02$, $SD_{\text{similar}} = 1.23$, $M_{\text{dissimilar}} = 5.51$, $SD_{\text{dissimilar}} = 1.33$; $t(127) = 2.19$, $p = .03$). These results again suggest that

even without actively rejecting goal-inconsistent alternatives to make a goal-consistent choice, merely considering dissimilar goal-inconsistent paths afterwards could increase the perceived impact of a prior goal-consistent choice.

STUDY 2: MANIPULATED GOAL IMPORTANCE MODERATES THE EFFECT OF DIVERSE ALTERNATIVES

In study 2, we tested the option diversity effect in the context of altruism goals. Furthermore, we examined whether endorsing the focal goal moderates the effect of option diversity on the subjective impact of a choice. In particular, we wanted to test whether considering dissimilar foregone alternatives leads people to perceive their choice as having greater impact on goal progress primarily when the focal goal is personally important.

Method

We collected 382 valid completed surveys from US Mturk participants (47% male, $M_{\text{age}} = 37.99$). The experiment employed a 2 (option diversity: similar or dissimilar) $\times$ 2 (goal importance: high or low) between-subjects design.

First, we manipulated the personal importance of a donation goal by having participants read an article either stressing the importance of donations from all individual donors (high importance) or emphasizing the particular importance of wealthy donors (low importance). Participants in the high importance condition read the following passage that emphasized the impact and responsibilities of individual donors like our participants:

Charities need to raise donations to continue doing their important work. It is crucial that everyone chips in and contributes their share.

A recent report from National Center for Charitable Statistics found that only about half of Americans donate to charity. Many people think their donation is too small to make a difference. However, even small donations can have a large impact on the lives of people in need. For example, a \$2 donation can provide 7 children with micronutrient fortification they need for a year.

Charities need the support of as many small individual donors as possible. When everyone participates and gives what they can, it helps charities to spread the word about their cause. Charities operate more effectively when they have a broad base of support, not just depending on a handful of wealthy donors.

In contrast, participants in the low importance condition read the following passage that emphasized the responsibilities of a small number of wealthy people, who are different from most of our participants:

Charities need to raise donations to continue doing their important work. It is crucial that wealthy people chip in and contribute their share.

A recent report from National Center for Charitable Statistics found that the wealthy give a smaller share of their income to charities than other people who earn less do. The wealthiest Americans, with earnings in the top 20 percent, donate only 1.3 percent of their income to charity. In comparison, middle-class and lower-income Americans donate more, 5.2 percent of their income.

Charities need the support of as many wealthy donors as possible. When wealthy Americans give their fair share, it helps charities to reduce their operating expenses.

Charities operate more effectively when they have sufficient support from wealthy

donors, not just depending on chasing after small donations from people who can't afford to give more.

To ensure that participants read and comprehended the passage, we asked participants to write a one-sentence summary of the passage they read. We excluded 7 participants who gave incorrect answers, leaving 375 complete surveys for further analysis. Results were the same when we included those participants (See Online Appendix F). As a manipulation check, we measured the personal importance of the donation goal to our participants, using the sum of three ratings: (1) “Donating to charities is important to me personally”; (2) “I plan to donate more in the future than I have in the past”; (3) “I feel personally responsible to make charitable contributions” using a 10-point scale (1 = *Completely disagree*, 10 = *Completely agree*).

All participants were first asked to think about and write down how they would like to spend \$100 for themselves. Next, participants were randomly assigned to one of two conditions. In the similar alternatives condition, they were asked to briefly list two similar alternative ways to spend the same amount of money, and explained why the three ways to spend the money are similar to one another. In the dissimilar alternatives condition, they listed two dissimilar alternatives and explained the dissimilarity of all three ways to spend the money. Participants then were asked to imagine that they had decided to donate an unexpected \$100 windfall of income to a charity, instead of spending it on one of the previously listed alternatives. After reading the scenario, participants reported the subjective impact of their decision on their goal, using the same measures in Study 1.

Prior research has shown that affective experiences during goal-pursuit can influence how people interpret their goal-related choice (Fishbach, Eyal and Finkelstein 2010). To test for affect as a potential confound, we measured how satisfied participants would feel with the

decision, how good they would feel about themselves, and how much difficulty they would feel when making the decision to donate on a 7-point scale (1 = *Not at all*, 7 = *Very much*). We were also concerned that having participants generate similar or dissimilar alternatives may lead them to include more preferred or less preferred options in the set of foregone alternatives, depending on the conditions. For additional control measure, therefore, participants reported the attractiveness of each of the options they provided in the alternative-listing phase, using a 7-point scale (1 = *Not at all*, 7 = *Very much*). Finally, participants indicated their gender, age, and personal annual income.

Results

Manipulation check. A 2 (manipulated option diversity: similar or dissimilar) $\times$ 2 (manipulated goal importance: high or low) ANOVA on the goal importance measure ($\alpha = .88$) revealed only a significant main effect of the goal importance manipulation ($M_{\text{high}} = 7.27$, $M_{\text{low}} = 6.70$; $F(1, 371) = 7.62$, $p < .01$; all other p 's $> .20$), indicating a successful manipulation.

Subjective impact. We predicted that considering dissimilar foregone options would result in higher perceived impact, but only among participants who perceived the focal goal as important. To test this prediction, we conducted a 2 (option diversity: similar or dissimilar) $\times$ 2 (goal importance: high or low) ANOVA on the composite measure of subjective impact ($\alpha = .91$). The results revealed a significant interaction ($F(1, 371) = 5.87$, $p = .016$) as well as a significant main effect of option diversity ($F(1, 371) = 6.26$, $p = .013$; see Figure 1 and Online Appendix E).

FIGURE 1: THE EFFECT OF FOREGONE OPTION DIVERSITY AND GOAL IMPORTANCE ON SUBJECTIVE IMPACT

Note: Error bars depict 95% Confidence Intervals.

In the high goal-importance condition, when participants had been prompted to consider donating and helping charities as their responsibility, those who considered a set of dissimilar alternative ways of spending money felt they had made a greater impact by instead making the donation than did those who considered a set of similar alternatives ($M_{\text{similar high}} = 5.30$, $SD_{\text{similar high}} = 1.47$, $M_{\text{dissimilar high}} = 5.97$, $SD_{\text{dissimilar high}} = 1.12$; $t(192) = 3.55$, $p < .01$). However, in the low importance condition, when prompted to consider donation as someone else's responsibility, diversity of the foregone alternatives did not affect perceived impact of the choice on their goal ($M_{\text{similar low}} = 5.45$, $SD_{\text{similar low}} = 1.38$, $M_{\text{dissimilar low}} = 5.45$, $SD_{\text{dissimilar low}} = 1.28$; $t(179) = .02$, $p = .983$).

Control measures. We conducted the same 2×2 ANOVAs on control measures. Results indicated no significant interaction or main effects for choice satisfaction, good feeling about oneself, and attractiveness of alternatives (all p 's $> .10$). Participants did view the donation

decision as more difficult when the donation goal was not personally important ($M_{\text{high}} = 4.28$, $M_{\text{low}} = 4.82$; $t(371) = -2.98$, $p < .01$). Importantly, the effect of option diversity on subjective impact remained significant controlling for the control measures. In the high goal-importance conditions, considering dissimilar (vs. similar) alternatives led to higher subjective impact ($\beta = .59$, $t(188) = 3.50$, $p < .001$) controlling for the other measures (including choice difficulty), whereas the diversity of considered alternatives did not yield a difference when the goal was not important ($\beta = .17$, $t(175) = 1.09$, $p = .277$).

Discussion

Study 2 provides additional evidence that the diversity of foregone options influences how people evaluate the impact of their choice on goal progress. The lack of an effect of option diversity on the affect control measures further suggests that considering having foregone dissimilar alternatives distinctively influences people's goal perceptions, without necessarily changing their affective responses about the choice. In particular, considering dissimilar alternatives, compared to considering similar alternatives, led people to feel they had achieved higher impact on their goal progress. However, the heightened subjective impact in the dissimilar alternatives condition only occurred when the focal goal was manipulated to be personally important.

STUDY 3: MEASURED GOAL IMPORTANCE MODERATES THE OPTION DIVERSITY EFFECT

In study 3, we employed a different goal context, dieting, to further generalize our findings, and we measured naturally occurring variation in goal importance. In this study, we

provided all the participants with the same set of foregone alternatives, instead of asking participants to each generate their own alternatives, to control for any influences on goal perception of generating alternatives. In sum, study 3 again tests the option diversity effect and the moderating role of goal importance 1) in a different goal setting, 2) using measured goal importance, and 3) presenting participants with a fixed set of foregone alternatives.

Method

We collected 468 completed surveys from MTurk participants in the United States (53% male, $M_{\text{age}} = 39.03$). This study manipulated option diversity (similar or dissimilar) between-subjects. The study consisted of three phases: diversity evaluation and goal progress evaluation counterbalanced, and dieting goal-importance measured last. We found no significant differences based on order, and present results collapsed over the two orders.

In the diversity evaluation phase, participants were presented with 8 sets of 3 different snacks (e.g., classic glazed donut, chocolate iced custard-filled donut and powdered raspberry-filled donut in the similar alternatives condition, or classic glazed donut, key lime cupcake and potato chips in the dissimilar alternatives condition). Participants rated how similar or dissimilar the snack items shown in a set were, using a 7-point scale (1 = *Absolutely dissimilar*, 7 = *Absolutely similar*).

In the goal progress evaluation phase, participants were asked to imagine that they were currently on a diet and had decided to have a low-calorie snack, baked apple chips, instead of choosing one of the three other high-calorie alternatives. In the similar alternatives condition, all three foregone options were the same kind of snacks (e.g., donuts) but with different flavors (e.g., glazed, chocolate iced custard and powdered raspberry). However, in the dissimilar alternatives condition, the choice set consisted of three different kinds of snacks (donut, cupcake

and salty chips). The foregone alternative sets were designed such that each item appeared in exactly one similar alternatives set and one dissimilar alternatives set, so as to equalize the items on average across the sets. As a manipulation check, participants rated how similar the three foregone options were to one another on the same 7-point scale they used in the diversity evaluation phase. Then, they completed the three-item subjective impact measure, as well as the control measures used in the previous studies.

After an unrelated filler task, participants rated the attractiveness of the nine snack items that we used in the study, and answered a slightly modified Concern for Dieting subscale of the Restraint Scale (RS; Herman & Polivy, 1975). Sample items included “Would a weight fluctuation of 5 lbs affect the way you live your life?” (1 = *Not at all*, 4 = *Very much*) and “How conscious are you what you are eating?” (1 = *Not at all*, 4 = *Extremely*). In addition to four items of the Concern for Dieting subscale, participants also rated how likely they were to consciously eat low calorie foods using a 4-point scale (1 = *Very unlikely*, 4 = *Very likely*). We averaged the measures to create a composite score reflecting the personal importance of dieting goals. Finally, participants indicated their height and weight, to enable us to calculate BMI, as well as gender and age.

Results

Manipulation check. To confirm that participants perceived the foregone alternative sets comprised of the same kind of snack with different flavors (in the similar condition) as being more similar than the sets of different kinds of snacks (in the dissimilar condition), we conducted a two-way ANOVA with the option diversity manipulation (similar or dissimilar) and goal importance (measured variable; $\alpha = .68$; $M = 2.18$, $SD = .51$) as factors predicting the diversity ratings. Results revealed only a significant main effect of the option diversity manipulation

($M_{\text{similar}} = 3.35$, $M_{\text{dissimilar}} = 5.29$, $F(1, 465) = 146.58$, $p < .001$). No other effects were significant (p 's $> .30$), indicating a successful manipulation.

FIGURE 2: THE EFFECT OF FOREGONE OPTION DIVERSITY AND GOAL IMPORTANCE ON SUBJECTIVE IMPACT

Subjective impact. We conducted a regression analysis, predicting the subjective impact scale by option diversity condition, measured goal importance, and the interaction of the two, controlling for participants' BMI and the counterbalanced order of the diversity evaluation phase. Replicating our previous finding in study 2, we found a significant interaction between diversity of foregone alternatives and goal importance ($\beta = -.55$, $t(462) = -2.06$, $p = .040$; see Figure 2 and Online Appendix H). The interaction between option diversity and goal importance on perceived impact on goal progress remained significant even after controlling for the four

additional measures (choice satisfaction, feeling good about oneself, decision difficulty, and averaged attractiveness of alternatives; $\beta = -.55$, $t(458) = -3.07$, $p = .002$).

We conducted a floodlight analysis to identify the range of goal importance values for which the option diversity manipulation significantly impacts the subjective impact of a choice on goal progress (Johnson and Neyman 1936; Spiller et al. 2013). The Johnson–Neyman point at $p < .05$ for the goal importance moderator was 2.06 (on the 4-point scale). For the 58% of participants who rated dieting goal importance at 2.06 out of 4 or higher, choosing a healthy option over a set of dissimilar unhealthy alternatives (rather than over a set of similar unhealthy alternatives) was perceived as having made a greater impact on the focal goal. Conversely, among those who were not actively pursuing a dieting goal (below 2.06 on the dieting goal importance scale), the similarity or dissimilarity of the foregone alternatives did not significantly affect the perceived impact.

Discussion

The findings in study 3 are consistent with those of study 2. These results further corroborate our proposition that considering dissimilar foregone alternatives can increase the perceived impact of a goal-consistent choice on overall goal progress, especially among people who are actually pursuing the focal goal.

STUDY 4: CONSIDERING DISSIMILAR ALTERNATIVES MOTIVATES GOAL-CONSISTENT CHOICES

Study 4 employed “eating healthy” as another widely shared food goal, in place of the narrower goal of dieting used in study 3. In a pretest ($N = 142$, see Online Appendix A), we

defined healthy eating as 1) high consumption of vegetables, 2) low consumption of red meat, and 3) low consumption of sugar, and we asked people to indicate whether they currently endorse at least one of the criteria as a goal. Results confirmed that 89% of people (126 out of 142) were pursuing healthy eating as an active goal.

While the studies thus far have investigated the subjective impact of a choice on the goal, the current experiment was intended to examine the consequences: how consumers' evaluation about an initial choice due to which foregone alternatives are considered impacts subsequent goal-related decisions. We predicted that people who consider having previously passed over dissimilar (vs. similar) unhealthy alternatives in favor of a healthy option, would not only perceive that they have made greater impact on overall goal progress, but the higher perceived impact would also increase motivation to persist in goal pursuit and to make subsequent goal-consistent choices.

In addition, we explored the role of temporal distance as a potential moderator. Prior research has demonstrated that temporal distance can impact self-control and motivation. At the most basic level, more temporally distant outcomes are valued less (see Urminsky & Zauberman 2016 for a review). Temporal distance may also affect the level of information processing. The greater the temporal distance, the more likely individuals are to focus on abstract and decontextualized information rather than concrete and contextual details of events (Trope and Liberman 2000). This implies that how consumers construe alternatives of their initial choice (i.e., considering having foregone dissimilar vs. similar alternatives) would be more likely to impact their subsequent choice when making a choice for the immediate future, which is processed in a relatively concrete construal. We predict that larger subjective impact of an initial choice when considering dissimilar alternatives would motivate consumers to make another

goal-consistent choice (i.e., consistently choosing a healthy option) for the near future. However, when making a choice for a distant future, which is processed in a relatively abstract construal, the effect of option diversity may be attenuated.

Method

We collected 174 valid complete surveys from Mturk participants in the United States (45% male, $M_{\text{age}} = 39.05$). This study employed a 2 (option diversity: similar or dissimilar) $\times$ 2 (temporal distance of subsequent choice: proximate or distant) between-subjects design.

First, participants read a short description of what “healthy diet” means as below:

"A healthy diet" is one that helps to maintain or improve your health, providing balanced nutrients that are essential for your body to function properly. According to a recent report from the World Health Organization (WHO) about the current US diet pattern, below are the three major factors of a health promoting diet.

- 1. High consumption of plant-based foods, such as vegetables, fruits, whole grains, and nuts.*
- 2. Low consumption of animal-based foods, particularly red meat and processed meat (including bacon, ham, and sausages.)*
- 3. Low consumption of sugar.*

Then, we asked participants to recall and write about a recent experience when they had made a healthy food choice that met at least one of the criteria stated above. As in study 2, participants then generated either three similar or three dissimilar unhealthy alternatives they could have chosen instead of the healthy food that they did choose. After describing how the three alternatives were similar or dissimilar to one another, participants evaluated how much impact they thought they had made with their past goal-consistent choice. They also answered

three additional measures—decision satisfaction, feeling good about oneself, and decision difficulty—as in studies 2 and 3.

The survey then asked participants to imagine that they were going to have a business dinner and they had to select their meal, either a healthy but less tasty option (“Get healthy with well-balanced dishes! Enjoy a green goddess salad, a nutrient-rich entrée, and a low-sugar dessert”) or a less healthy but tasty meal (“Treat yourself with tasty dishes! Enjoy a savory appetizer, a full-flavored entrée, and a delightful dessert”; see Online Appendix I). In the proximate condition, the choice was for a dinner tomorrow, whereas in the distant condition, participants made a choice for a dinner that would take place in one month.

Finally, to validate that participants were endorsing healthy eating as a goal, we measured their consciousness of what they are eating, commitment to healthy eating, and importance of eating healthy, using a 7-point scale (1 = *Not at all*, 7 = *Very much*). Participants indicated their height, weight, gender, and age as demographic information.

Results

As we intended, and confirming our pretest result, the composite score of healthy eating goal importance ($\alpha = .85$) revealed that, on average, participants were pursuing eating healthy as an important and active goal ($M = 5.24$, $SD = 1.17$; $t(173) = 13.96$, $p < .001$ when compared with the midpoint of the scale (4) in one-sample t-test).

Subjective impact. First, we tested our main hypothesis that considering dissimilar alternatives (instead of similar alternatives) increases the perceived impact of a goal-consistent choice on goal progress. Because we manipulated temporal distance after participants had already reported their subjective impact, we collapsed across temporal distance conditions, and conducted a one-way ANOVA with the option diversity manipulation as a factor. Replicating our

previous findings, participants who considered dissimilar unhealthy alternatives felt they had achieved greater impact on their healthy eating goal compared to those who considered similar alternatives ($M_{\text{similar}} = 4.74$, $SD_{\text{similar}} = 1.44$, $M_{\text{dissimilar}} = 5.23$, $SD_{\text{dissimilar}} = 1.33$; $F(1, 172) = 6.68$, $p = .011$). The effect of option diversity remained significant after controlling for decision satisfaction, good feelings about oneself, decision difficulty, and individual's BMI ($F(1, 168) = 4.53$, $p = .035$; see Online Appendix J).

FIGURE 3: THE EFFECT OF FOREGONE OPTION DIVERSITY AND TEMPORAL DISTANCE ON SUBSEQUENT CHOICE

Note: Error bars depict 95% Confidence Intervals.

Subsequent meal choice. A logistic regression analysis on the subsequent meal choice revealed a significant interaction between option diversity and temporal distance ($\beta = -2.02$, Wald = 8.16, $p = .004$; see Figure 3). In the proximate condition, in which participants made a decision about a dinner tomorrow, considering dissimilar unhealthy alternatives to a prior healthy choice yielded more choices of a healthy meal, compared to considering similar unhealthy alternatives (83% vs. 51%, $\chi^2 = 8.17$, $p = .004$). However, the diversity of goal-

inconsistent alternatives had no effect when participants instead made a dinner choice for the distant future (1 month away; 80% vs. 70% chose the healthy option, $\chi^2 = .64$, $p = .425$). The interaction between foregone-alternative diversity and temporal distance remained significant after controlling for the three affective measures and individual's BMI ($\beta = -1.81$, Wald = 6.20, $p = .013$).

Mediation analyses. We conducted mediation analyses separately for each temporal condition, using the PROCESS macro (Preacher and Hayes 2004; Hayes 2013), to test whether subjective impact of the prior goal-consistent choice on goal progress mediated the effect of option diversity on healthy food choice in the present but not the future. The regression model revealed that when participants made a decision about the present, higher perceived impact due to considering dissimilar alternatives increased choices of the healthy option (indirect effect $\beta = .32$, 95% CI = [.04, 1.02]). However, when making a decision about the distant future, perceived goal impact did not mediate the effect of option diversity on the subsequent goal-related choice (indirect effect $\beta = .13$, 95% CI = [-.03, .57]).

Discussion

Study 4 again replicated the option diversity effect, that thinking about dissimilar foregone goal-inconsistent alternatives increases people's perception of their past choice, specifically, of how much impact a single goal-consistent choice had on the overall goal. Furthermore, study 4 demonstrated that this effect of foregone alternatives on subjective goal impact in turn leads people to make more goal-consistent choices in their subsequent decisions about imminent options.

Furthermore, the findings showed that the option diversity effect on the subsequent choice is moderated by the timing of the outcome. When making a choice that would take effect

in the more distant future, people are already more likely to focus on a long-term goal and pay less attention to contextual details of events (Lieberman et al. 2002; Read and van Leeuwen 1998), and therefore the positive effect of considering dissimilar alternatives is mitigated. These results suggest that external cues that induce people to think about dissimilar foregone alternatives could be an effective intervention to enhance people's motivation, especially when they are facing immediate temptations.

STUDY 5: EXTENDING THE OPTION DIVERSITY EFFECT TO THE FIELD

Study 5 was conducted with three objectives in mind. First, we aimed to test the effect of considering dissimilar alternatives in a naturalistic setting, at a school gym, in which people have spontaneously made an actual initial goal-consistent choice (to exercise). Secondly, we tested whether the effect of foregone alternatives on subjective impact of an initial choice in one domain (exercise) impacts subsequent real consequential choices in a distinct domain (snacks) that may share a superordinate goal (health). Previous work on goal pursuit with multiple subgoals in different domains has suggested that when a superordinate goal is activated, initial progress in a subgoal leads individuals to pursue a different, but congruent, subgoal. By contrast, when a superordinate goal is not activated, initial progress in a subgoal results in less of a need to pursue another congruent subgoal (Fishbach, Dhar and Zhang 2006). In order to test the effect of considering dissimilar alternatives on subjective impact for the same subgoal, we measured participants' perceived impact of their choice specifically on their *exercise* goal, rather than measuring subjective impact of the choice on their more general health goal. This approach has the added benefit of not suggesting to participants that they should think in terms of a

superordinate goals. Lastly, in addition to the foregone alternatives manipulation, the current study included a control condition in which people did not consider any alternative activities they could have done instead of exercising. This was included to test the proposition that considering dissimilar options enhances perceived impact of initial choice on goal progress, as opposed to consideration of similar options reducing people's perceived impact of their choice.

Method

We recruited 234 participants (121 male, $M_{\text{age}} = 24.51$) who were leaving the gym on the campus of a large Midwestern university after exercising. Prior to analysis, we excluded 24 participants who were taking physical education classes or who trained for varsity teams, and whose decision to go to the gym might therefore reflect a long-standing commitment, rather than a specific discretionary choice. After this exclusion, we had 210 participants for analysis. This study employed a between-subjects design with three foregone-alternatives conditions (considering similar alternatives vs. dissimilar alternatives vs. no alternatives control).

In the foregone-alternative conditions, participants first wrote down one activity they could have done instead of exercising. On the next page, they were asked to write down either two very similar or two very dissimilar other ways they could have spent their time, instead of exercising. Participants then explained why the three ways of spending their time were either similar or dissimilar, depending on condition. Then, on the next page, using the same three subjective impact measures used in the previous studies, they evaluated their choice to work out at the gym rather than the foregone alternatives they had described on the previous page. Participants in the control condition instead simply evaluated their decision to exercise without being prompted to consider or take into account alternatives.

After the evaluation, participants were told that they would receive an energy bar as a “thank-you” gift for completing the survey. The participants indicated which of two energy bars (“wholesome mix of healthiness: KIND almond, walnut & macadamia” vs. “sweet and salty indulgence: KIND dark chocolate & peanut butter”) they would like to receive. On the final page, participants described briefly what they had done at the gym, and indicated how long they had worked out (in minutes), how often they worked out (1 = *Less than 1 time a month*, 5 = *Almost every day*), and how much they enjoyed working out (1 = *Not at all*, 7 = *Very much*). To confirm that participants were pursuing an exercising goal, we also measured how committed they were to working out and how important it was to them to work out regularly (1 = *Not at all*, 7 = *Very much*), as well as their gender and age for demographic information. Upon the completion of the survey, each participant was given the energy bar they had selected in the survey.

Results

Pretest of energy bars. We conducted a pretest ($N = 45$) on MTurk to confirm that people evaluate the two energy bars differently, in terms of perceived healthiness, indulgence, and congruence with a health goal. We presented pictures, side-by-side, of the two energy bars and the same descriptions that would be used in the main study. Participants evaluated how well each adjective (tasty, healthy, enjoyable, and indulgent) described the energy bars, using a 10-point scale (1 = *Not at all*, 10 = *Extremely*). They also estimated the retail price on a sliding bar from \$0 to \$10. In addition, participants imagined that they were considering eating one of the energy bars after exercising and indicated 1) how guilty they would feel, 2) how much it would ruin their goal of being fit, 3) how much it would be inconsistent with their goal of being fit if they ate each of the bars, using the same 10-point scale. Results confirmed that people perceived the

almond, walnut & macadamia energy bar as healthier (6.77 vs. 5.02, $p < .01$), less indulgent (5.82 vs. 7.39, $p < .01$), and less tasty (7.09 vs. 7.77, $p = .06$) than the dark chocolate & peanut butter energy bar. There was no significant difference in enjoyment (7.05 vs. 7.50, $p = .28$) or estimated retail price (\$2.48 vs. \$2.53, $p = .75$). Also, people indicated that eating the dark chocolate & peanut butter energy bar would make them feel guiltier (4.75 vs. 3.34), more negatively impact their health goal (4.70 vs. 3.41), and would be more inconsistent with the health goal (5.80 vs. 4.20, all p 's $< .01$).

Subjective impact on an exercising goal. We averaged the two measures for participants' commitment to and importance of an exercising goal ($r = .71$). As we expected, given the population we recruited, participants on average reported exercising as an active goal ($M = 5.60$, $SD = 1.35$; $t(199) = 19.46$, $p < .01$ when compared with the midpoint of the scale (4) in one-sample t-test).

A one-way ANOVA on the perceived goal progress measure ($\alpha = .68$) revealed a significant main effect of alternatives condition ($F(2, 207) = 5.05$, $p = .007$; see Figure 4). Participants in the dissimilar foregone-alternatives condition felt they had achieved higher progress on their exercise goal than either (1) those in the similar foregone-alternatives condition ($M_{\text{similar}} = 4.50$, $SD_{\text{similar}} = 1.07$, $M_{\text{dissimilar}} = 4.86$, $SD_{\text{dissimilar}} = 1.03$; $\beta = .36$, $t(141) = 2.04$, $p = .042$) or (2) than those in the control condition ($M_{\text{control}} = 4.27$, $SD_{\text{control}} = 1.22$; $\beta = .59$, $t(139) = 3.09$, $p = .002$). Participants in the similar foregone-alternatives condition did not show a significant difference in their perceived goal progress from those in the control condition ($\beta = .23$, $t(134) = 1.15$, $p = .247$). These results rule out the interpretation that considering similar alternatives reduces the subjective impact of the prior goal-consistent choice on the overall goal. Instead, the results suggest that considering foregone options enhances subjective impact

primarily when the foregone options are dissimilar, confirming our proposition. The effect of option diversity remained significant after controlling for the control measures, including exercise duration, frequency of gym visit, and enjoyment ($F(2, 194) = 4.64, p = .011$).

FIGURE 4: THE EFFECT OF FOREGONE OPTION DIVERSITY
ON SUBJECTIVE IMPACT AND SUBSEQUENT CHOICE

Note: Error bars depict 95% Confidence Intervals.

Subsequent choice about food. When participants recalled dissimilar alternative activities they could have chosen instead of exercising, about 64% of participants selected the healthier option (the almond, walnut & macadamia energy bar). However, significantly fewer participants selected the healthier option when they instead considered similar foregone alternatives (39%, χ^2

= 7.55, $p = .006$) or when they did not consider any alternatives at all (45%, $\chi^2 = 4.25$, $p = .039$; see Figure 4). The rate of choosing the healthy option did not differ between the similar foregone-alternative and control conditions ($p = .62$). These results suggest that thinking about dissimilar foregone alternatives not only increases people's motivation to continue pursuing the focal goal, but also impacts real choices.

Discussion

Consistent with the results in the previous studies, study 5 affirms that considering dissimilar forgone options increases subjective impact of a goal-consistent choice on the focal goal, motivating people to persist in goal pursuit. We replicated the option diversity effect in a naturalistic setting with real goal-consistent behavior and documented the consequences for real choices.

Moreover, study 5 replicated our findings in a broader context, involving multiple subgoals that relate to a superordinate goal. The current findings showed that greater perceived impact on one domain of a subgoal (exercising) due to consideration of diverse foregone alternatives can spill over, influencing behaviors in a distinct subgoal domain (healthy eating). Although we observed the expected patterns of results in both subjective impact and subsequent choices, the subjective impact of the initial choice on the exercising goal did not mediate the subsequent food choice in study 5. The distinction between the two different subgoals may explain the lack of significant mediation. Future research would be useful to investigate the role of different ways people think of the superordinate goal. In particular, it remains to be determined whether higher subjective impact on an exercising goal leads to a healthier food choice only when people highly value a superordinate health goal (importance of a superordinate goal; Devezzer et al. 2014), if they actively consider the superordinate goal when making the food

choice (accessibility; Fishbach et al. 2006), or when they perceive the two subgoals as part of the same superordinate goal (Truelove et al. 2014).

GENERAL DISCUSSION

The present research suggests that the way in which people consider foregone options can influence how they evaluate the impact of their past choice on their goals, as well as what they choose subsequently. Across five studies, we found that when consumers considered dissimilar (vs. similar) goal-inconsistent alternatives that they could have chosen, they believed that they had made more impactful progress towards goals they considered important (measured or manipulated), including savings (study 1), donation (study 2) and healthy eating (studies 3 and 4). Further, they were then more likely to stick to the goal in a subsequent hypothetical or real choice involving the same goal (study 4) or a related goal (study 5). Taken together, these results provide converging evidence that the type of considered alternatives to a prior choice can significantly impact evaluations of the past choice and motivation to further pursue a target goal.

Theoretical contributions

The current research makes multiple contributions to the literature on choice and goal pursuit. First, our work advances our understanding about the role of choice sets in goal-directed behavior. Whereas previous research on choice sets has mostly focused on how the composition of *current* choice alternatives affects evaluations of an alternative or a choice made from the set, we extend the effect of choice set to sequential decisions, demonstrating that the type of foregone alternatives from a *prior* decision that are salient influences people's subsequent decisions. Our research bridges the choice set and goal pursuit literature, by showing that the diversity among

foregone choice-set alternatives that people have considered affects their motivation to pursue a focal goal, resulting in different goal-related choices subsequently.

Furthermore, the current findings shed new light on the role of memory in goal pursuit. Whereas most prior research investigates the effect of actual unchosen options in a choice set, the present research suggests that *mental representation* of foregone options can impact how consumers evaluate their choice and change their further goal-related decisions. As shown in study 1, merely construing prior alternatives as more different from (vs. similar to) each other increased subjective impact of the goal-consistent choice on overall goal progress.

Our findings regarding subsequent choices in studies 4 and 5 are consistent with self-perception theories of behavioral consistency, in which past behavior leads individuals to do more of the same behaviors (see Merritt, Effron and Monin 2010 for a review). However, our findings are in contrast with a generalized view of licensing, in which a positive initial behavior liberates individuals to engage in less positive behaviors subsequently, which has been documented in various domains including prosocial behavior and consumer choice (Jordan et al. 2009; Khan and Dhar 2006; Mazar and Zhong 2010). This raises the question of whether considering diverse foregone alternatives might sometimes instead lead to less goal persistence due to perceived goal progress.

Recently researchers have suggested numerous moderators that could explain the seemingly contradictory findings that the same past behavior sometimes promotes consistency and further engagement while sometimes producing licensing and disengagement from the initial action. For example, consistency with (vs. change from) past choices is more likely to occur when the target behavior has stronger relevance to their values or identity (Clot et al. 2016; Effron et al. 2009), when people draw inferences from their initial action that they value the

target behavior and are committed to the goal (Fishbach and Dhar, 2005; Gneezy et al. 2012; Kristofferson, White and Peloza. 2014), when the initial goal-consistent action is for a goal people autonomously chose to endorse (Zhang et al. 2010), and when prior outcomes make people optimistic about future outcomes (Yang and Urminsky 2015). Our studies explore situations in which participants are focused on foregone alternatives and consider the goal important to themselves, which makes goal consistency more likely than goal licensing. While we do not test this directly, our prediction is that in those situations which have been shown to give rise to deviations from past behavior, considering diverse foregone alternatives may no longer contribute to goal-consistent choices.

The current research also illustrates the importance of the *subjective* impact of goal progress for consumer's motivation. Previous research on goals has often studied situations in which people know the actual value and extent of their goal progress and can identify the exact distance from the final goal (e.g., "buy 10 coffees and get one free", Kivetz et al 2006). However, when people pursue an open-ended goal, both the absolute level of goal-pursuit and the marginal value of goal progress may be uncertain even though people have a sense of their relative progress. For example, people trying to eat healthier may not have a clear sense of how healthy their diet is, or the specific benefits of choosing a healthier food. However, the same people may have a very clear sense of progress when they have made a choice that contributes to vs. undermines their health goal. Thus, our research extends the literature on "nonspecific goal pursuit", which is common in practice but less studied than specific goals (See Wallace and Etkin 2017). Our research suggests considering diverse foregone alternatives contributes to the perceived impact of a goal-consistent choice on goal progress, even without access to objective,

quantifiable goal status (i.e., distance from starting or ending points), making people more likely to stick to their goal.

Lastly, our findings demonstrate the importance of goal importance, not only to goal-consistent choices as has been previously shown (Cordova and Lepper 1996; Deci and Ryan 2000; Zuckerman et al. 1978), but to how people cognitively process goal related information. As studies 2 and 3 demonstrate, consideration of diverse alternatives results in larger perceived impact of a goal-consistent choice among those who hold the goal, but not among those who do not. This can result in otherwise unexplained heterogeneity in how people process goal pursuit. In a supplemental meta-analysis of 5 studies involving dieting goals (study 3 plus four additional studies; see Online Appendix L), we find a significant interaction between the diversity of alternatives considered and gender on subjective impact ($p = .04$). Considering diverse alternatives to a healthy food choice results in greater perceived impact of the choice on dieting goal progress specifically among women ($p < .01$), who are more likely to hold an active dieting goal (Myrseth, Fishbach, and Trope 2009), but not among men ($p = .81$). These results suggest that motivation to process distinctive features of foregone alternatives is required for the option diversity effect to occur.

Future research directions

Our work offers interesting possibilities for future research. Our conceptual argument is consistent with the proposition that people tend to feel as if they could have enjoyed *all* possible alternatives, not just *one* alternative, if they had made a different choice, and therefore, they feel they've given up more by foregoing a set of dissimilar (vs. similar) alternatives (Weiss and Kivetz 2014). Future research could explore additional implications of this view. For example, people may feel that they have made more goal progress if they consider a larger number of

goal-inconsistent alternatives they could have selected instead of a goal-consistent choice they did choose. Future work might find it fruitful to quantify and tease apart the independent effects of the most attractive alternative, average utility of all the alternatives and the variance of the alternatives on the perceived utility of a choice set as a whole, and thereby on perceived impact of a goal-consistent choice for goal progress.

Our studies have also focused on the role of alternatives specifically when individuals have made a goal-*consistent* choice. It would be interesting to investigate the effect of option diversity when participants have made a goal-*inconsistent* choice, failing to follow their goal. After succumbing to a temptation, would the diversity among the foregone goal-consistent options impact the perceived severity of the goal-pursuit failure and influence subsequent decisions? Extending our theorizing in the current work, we would predict that when people choose a goal-inconsistent option over dissimilar goal-consistent alternatives, they would evaluate their previous failure as more of a setback to goal attainment. However, it is unclear whether that would contribute to more vs. less goal-consistent subsequent choices.

The present research also suggests that it may be beneficial to incorporate consideration of alternatives in interventions designed to enhance motivation. In study 5, participants in the control condition, who were not explicitly asked to consider foregone alternatives to the exercise they had actually chosen to do, indicated less impact on their goal progress and were less likely to choose the healthy food than did those prompted to consider dissimilar alternatives. Therefore, a simple external cue inducing people to look back at various alternatives they have foregone to stick to their goal thus far may help people stay motivated. For example, it would be interesting to test notifications emphasizing users' past success in resisting diverse temptations for goal-pursuit (e.g., "You defeated so many temptations last time. Win again!") to encourage behavioral

consistency in a field study. However, using such interventions to boost self-regulation, such as weight loss, healthy eating, or saving, may only be beneficial among those people who already care about the goal. Overall, our findings suggest that considering diverse roads not taken motivates people to stick to their path when they are committed to reaching the destination.

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