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Vicarious Goal Fulfillment: When the Mere Presence of a Healthy Option Leads to an Ironically Indulgent Decision

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This research examines how consumers' food choices differ when healthy items are included in a choice set compared with when they are not available. Results demonstrate that individuals are, ironically, more likely to make indulgent food choices when a healthy item is available compared to when it is not available. The influence of the healthy item on indulgent choice is stronger for those with higher levels of self-control. Support is found for a goal-activation-based explanation for these findings, whereby the mere presence of the healthy food option vicariously fulfills nutrition-related goals and provides consumers with a license to indulge.

It is 3:00 p.m. in the office: too late for lunch, too early for dinner. So, you trudge down the hall to the vending machine, where you face an array of unhealthy, yet tasty, chips and cakes alongside some more calorie-conscious choices such as fruit and nutrition bars. As consumers, we frequently find ourselves facing such self-control dilemmas when selecting what to eat. These situations are becoming more familiar as restaurants, event venues, retailers, and other distributors have added healthier options to supplement their typically unhealthy product offerings. Even historically junk-laden venues such as vending machines are following suit, as the world's largest food-service companies are placing more healthy options in vending arenas, at the same time keeping their number 1–selling, and much less healthy, items like Snickers bars (Yara 2008). "It's appropriate to have choices that are indulgent and others that are better for you" (Richard Wyckoff, president of Aramark Refreshment Services, as reported in Yara 2008).

While the proliferation of healthy food alternatives has been beneficial for individuals who tend to make healthier food choices when given the opportunity to do so, its effect is far from ubiquitous. Interestingly, much of McDonald's recent financial success has not been attributed to the addition of healthier options, such as salad and fruit items, to its menu. Rather, many industry analysts have pointed to increased sales of more indulgent options, such as burgers and fries, as the key to their success (Case 2006; Warner 2006a). As a recent article on fast-food chains notes, "Fast-food customers had indeed been clamoring for healthy alternatives, which prompted an industry wide stampede toward salads and orange slices, but just because customers wanted them on the menu didn't necessarily mean they wanted to eat them" (Keohane 2008, 95). With the increased availability of nutritious food options, as well as the intentions of 72% of consumers to be more health conscious when eating outside of the home (Warner 2006b), why have more consumers not swapped their french fries for a side salad? In this article, we present evidence that for many consumers, the addition of healthy alternatives to choice sets can, ironically, increase the consumption of very indulgent food items.

Recent research suggests that the availability of healthy offerings may lead to less nutritious food choices. When restaurants claim to be healthy, for instance, consumers are more likely to underestimate the caloric content of main

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dishes and to order higher calorie side dishes compared to when restaurants do not make such a claim (Chandon and Wansink 2007). Others suggest that adding healthy items to food menus could make the unhealthy items on the menu appear less threatening and, hence, harder to avoid (Martin 2007). The objective of these articles, including our current research, is not to suggest that food retailers should limit their nutritious offerings; rather, we seek to provide a better understanding as to how the addition of healthier items may encourage, rather than inhibit, suboptimal food choices.

To explore this issue, we examine how consumers' food choices differ when a healthy item is included in a choice set compared to when it is not available. Across four studies in varying food consumption domains, we show that the mere presence of a healthy food option (1) vicariously fulfills health-related eating goals, (2) drives attention to the least healthy option in the choice set, and (3) provides individuals with the license to indulge in tempting food options. Further, we show that these effects are accentuated for those individuals with relatively higher levels of self-control. Thus, despite normally having elevated levels of self-control, these individuals tend to make more indulgent food-related decisions when a healthy food item is available compared to when it is not.

Specifically, this article contributes to research on context-dependent decision making that explores cues that lead to indulgence by showing that the mere presence of goal-consistent options leads some people to indulge by vicariously fulfilling health-related goals and drawing attention to highly tempting options. This is the first demonstration that goal fulfillment can occur by merely having the opportunity to behave in line with a goal. Building upon extant literature on the licensing effect (e.g., Fishbach and Dhar 2005; Khan and Dhar 2006) and extant literature demonstrating the effects of decision context on choice (e.g., Fishbach and Zhang 2008), the set of studies presented here contributes a unique theoretical contribution to goal theory by advancing our understanding of the process by which factors associated with the decision context can lead to goal fulfillment and, subsequently, impact consumer choice. We show that merely having the opportunity to behave in line with a goal—via the mere presence of a goal consistent option in a choice set—can lead to goal fulfillment and drive consumers to behave in line with alternative goals.

CONCEPTUAL FRAMEWORK

"I Guess That'll Be the Baked Potato"

Individuals frequently encounter scenarios in which their long-term goals conflict with the immediate benefits of temptations (Baumeister, Heatherton, and Tice 1994; Loewenstein 1996; Trope and Fishbach 2000). Such dilemmas are relatively common in the domain of eating behavior—recall your last vending machine or value menu choice—where healthy eating goals are often at odds with the desire to indulge (Hoch and Loewenstein 1991).

Recent research (Fishbach, Friedman, and Kruglanski 2003) has shown that when individuals are presented with temptation-related cues, they tend to focus on competing long-term goals as a means of self-regulation. For instance, the thought of going to a party might remind some that they have a lot of studying to do or a waiter's presentation of the dessert menu might remind someone of their desire to cut calories. The basic assumption is that due to repeated attempts at self-control over the course of their lives, individuals develop facilitative links between the cognitive representations of temptations and the goals with which they conflict.

Moreover, these links are overlearned to the extent that self-regulation often occurs outside of conscious awareness and does not require effort from the individual (Fishbach et al. 2003). Fishbach and colleagues observed that even when temptations were subliminally primed via the presentation of temptation-related words, competing long-term goals were activated and were more accessible than when participants were primed with nontemptation-related words or nonwords. In sum, exposure to temptations activates goals aimed at resisting temptations so that people can act in accordance with long-term interests. Based on this work, we predict that a similar pattern of goal activation is likely to result when individuals are exposed to a choice set consisting of relatively unhealthy food items. We posit that individuals are likely to have active health goals upon exposure to a set of options that does not include a healthy item; in turn, these goals will serve as a means of self-regulation and lead individuals to avoid indulgent choices.

We argue and present evidence that the process changes when healthy items, say salads or fruit, are added to a choice set. When a healthy option is added, individuals are provided with the opportunity to act in line with long-term goals. Interestingly, extant literature suggests that the mere presence of a goal-consistent option might work to fulfill that goal and thus, ironically, lead to more indulgent choices.

"I'll Have Fries with That, Please"

Recent research suggests that individuals license themselves to indulge in temptations when they have previously acted in line with a longer-term goal. This research suggests that when individuals focus on their progress toward a focal goal, it allows them to temporarily disengage from that goal to pursue tempting alternatives (Fishbach and Dhar 2005; Fishbach and Zhang 2008). The most common way in which individuals perceive goal progress is by actively pursuing the goal. For example, people who have just finished working out may feel that they have successfully satisfied their goal to be healthy, thus permitting them to indulge in dessert after their next meal. Interestingly, this research also demonstrates that simply intending to pursue a goal makes it more likely that individuals will indulge; respondents who intended to work out in the immediate future were more likely to eat an unhealthy dinner compared to those who had recently finished working out (Fishbach and Dhar 2005).

Related research on the licensing effect shows that prior virtuous behavior—or even intentions to act in such a man-

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ner—provides individuals with the rationale for activities and choices that are not in line with long-term goals. For instance, Monin and Miller (2001) found that respondents who had previously expressed nonsexist opinions were more likely to display sexist behavior. In this case, the opportunity to establish themselves as nonprejudiced provided these individuals with the license to behave in a prejudicial manner. Moreover, Khan and Dhar (2006) show that intentions to engage in virtuous activities (e.g., volunteering or making a charitable donation) lead individuals to select more indulgent items (e.g., designer jeans) over practical ones (e.g., a vacuum cleaner) in subsequent choice tasks.

We extend this reasoning to suggest that when individuals have the opportunity to engage in a course of action that is consistent with healthy eating goals, as they do when a healthy alternative is merely present in a choice set, the consideration of this option will satisfy the goal—at least temporarily—and, in turn, license them to indulge. Consistent with Polivy and Herman's (1985) "what the hell effect," which suggests that once individuals decide upon a course of behavior that is inconsistent with a goal (e.g., abandon their diet to eat a cookie) they are likely to continue to indulge to an even greater extent (e.g., eat the whole bag of cookies), we suggest that this licensing effect does not merely result in the selection of a less healthy option for those individuals who make their decision from the choice set that includes the healthy option but, rather, the least healthy option available. Thus, we argue that the mere presence of a healthy option in a choice set of relatively unhealthy foods should result in less active health goals and, in turn, greater preference for the most indulgent item compared to instances in which a healthy item is not available.

We tested this prediction in a pilot study in which participants were asked to make a choice of a side dish option to accompany their meal from a choice set consisting of either three relatively unhealthy items (i.e., french fries, chicken nuggets, and a baked potato) or one that contained these items in addition to a healthy option (i.e., a side salad). As expected, our results revealed that the percentage of people choosing the unhealthiest option (i.e., the french fries) increased from 10% to 33% when the healthy option was merely present in the choice set compared to when it was not.

Since this is the first documentation of the existence of this somewhat counterintuitive behavior, the goal of this pilot study was simply to demonstrate the phenomenon. Interestingly though, the goal activation processes that we propose to underlie this behavior suggest the potential for an ironic effect of sorts at the individual level, namely, that the effect we observed will be accentuated for individuals who are higher in self-control compared to those who are lower in self-control. Next, we explore the moderating role of self-control.

THE IRONIC EFFECT OF SELF-CONTROL

Faced with the lure of a temptation, self-control processes help to ensure that decisions in accordance with important long-term outcomes are made. Individuals can exert control over behavior through the activation of goal constructs, which work to inhibit temptations and guide goal-directed behavior (Fishbach et al. 2003; Shah, Friedman, and Kruglanski 2002). Interestingly, contextual cues present in the environment in which goals are pursued can impact the relative accessibility of goals and, hence, goal-directed behavior (Shah and Kruglanski 2002). Previous research has shown that individuals high in self-control have more accessible cognitions associated with the achievement of long-term goals compared to those low in self-control, thus demonstrating a greater focus on achieving important long-term objectives (Giner-Sorolla 2001). Moreover, the tendency for temptations to activate long-term goals as a means of facilitating goal progress is shown to be stronger for those who have experienced prior self-regulatory success, relative to less successful self-regulators (Fishbach et al. 2003). This suggests that individuals with relatively higher levels of self-control will experience more conflict and have more accessible health-related goals upon exposure to a choice set of relatively unhealthy food items compared to those with relatively lower self-control. Without the opportunity to disengage from these health-related goals, these pursuits should remain accessible and, in turn, decrease the likelihood of selecting the most indulgent item in the choice set.

In addition to having stronger cognitions associated with long-term goals than those with lower self-control, these individuals are also likely to rely more heavily on cues that justify indulgent choices. For instance, Kivetz and Zheng (2006) show that individuals who consider a choice to eat cake over fruit salad as inhibiting a long-term goal are more likely to indulge when they can access an entitlement cue (e.g., high effort on a prior task) that justifies their decision to indulge. In addition, research in the domain of eating behavior shows that those actively exerting self-control are more susceptible to food-related cues, particularly those that stimulate consumption (Fedoroff, Polivy, and Herman 1997, 2003). Based on this, we predict that the mere presence of a healthy item in a choice set of food options is likely to result in a licensing effect for individuals with high self-control. We predict that the mere presence of the healthy option will fulfill health-related goals for those with relatively higher levels of self-control and, in turn, increase the likelihood of selecting the most indulgent item in the choice set compared to when the healthy option is not available. This prediction is also in line with ironic reversals of control, whereby strong intentions to control actions ironically result in the opposite of intended behavior (Wegner 1994). Stated formally:

H1: The mere presence (vs. absence) of a relatively healthy item in a choice set of less healthy food alternatives will result in a greater likelihood of choosing the least healthy (most indulgent) item for individuals with relatively higher levels of self-control.

As discussed above, the effect predicted by hypothesis 1

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is predicated on the assumption that the mere presence of the healthy option works to fulfill health-related eating goals, which, in turn, affects choice. We posit that the mere presence of the healthy alternative acts to fulfill health-related eating goals for individuals with high self-control, thus licensing them to select a goal-inconsistent, indulgent alternative. Thus, we predict:

H2: The mere presence (vs. absence) of a relatively healthy item in a choice set of less healthy food alternatives will result in less active health-related goals for individuals with relatively higher levels of self-control.

We test the above hypotheses in four studies. In our first two studies, we demonstrate the effect proposed in hypothesis 1 across a series of food-related decision-making contexts using both general and domain-specific measures of self-control. Support for hypothesis 2 is shown in studies 3 and 4 using both direct and indirect assessments of goal fulfillment; while study 3 assesses goal fulfillment via response time measures, and study 4 uses a categorization approach to demonstrate vicarious goal fulfillment. Additionally, study 4 demonstrates that high self-control individuals increase the amount of attention paid to the most indulgent option in the choice set, thus explaining why the most indulgent option, rather than any indulgent option, is chosen. These studies are described next.

STUDY 1

Method

One hundred four undergraduate students (57% female) participated in this experiment to fulfill a course requirement. The experiment was conducted in two stages that took place approximately 2 weeks apart. In the first stage, participants evaluated nine different food items, including those used in the pilot study, using 7-point multi-item Likert scales (1 = strongly disagree, 7 = strongly agree). The scales included three-item measures of health perceptions for each item (e.g., eating french fries "is unhealthy," "is bad for you," "is not nutritious"; $\alpha > .70$ for all scales). Consistent with our pilot study, participants rated french fries as the least healthy option ($M = 5.94$), followed by chicken nuggets ($M = 4.87$), baked potato ($M = 2.96$), and salad ($M = 1.46$). The differences in health perceptions between the four side dishes were all significant (all $p < .001$). Given the variation in the health ratings of these options, we used these items to construct our choice sets for the study.

Next, participants rated the extent to which they liked each item in the choice set on a 7-point, two-item scale (1 = not enjoy at all, 7 = enjoy very much, and 1 = not like at all, 7 = like very much). Following an unrelated 15-minute filler task, participants completed the 7-point, 13-item Brief Self-Control Measure (Tangney, Baumeister, and Boone 2004), which served as a measure of Self-Control ($\alpha = .88$). We selected this measure due to its association with self-control in the food domain; high scorers on this general measure of self-control demonstrate greater food-related impulse control relative to low scorers (Tangney et al. 2004).

The second session was conducted approximately 2 weeks later in the same experimental setting as the first. Participants were randomly assigned to one of two choice set conditions and were presented with a menu consisting of either french fries, chicken nuggets, and a baked potato (i.e., No Healthy Option choice set) or these items in addition to a side salad (i.e., Healthy Option choice set). Respondents were told that each item cost the same amount of money and then were instructed to choose which side dish they would prefer to have with their lunch.

Results

Logistic regression was used to test our predictions. The key dependent variable was Indulgent Choice, coded as one if a participant selected the least healthy option (i.e., french fries) and zero otherwise. Choice Set was coded as a dummy variable equivalent to one if the participant was exposed to the choice set that did include the healthy option (i.e., Healthy Option) and zero if the participant was exposed to the choice set that did not include the healthy option (i.e., No Healthy Option). Choice Set, mean-centered Self-Control, and the interaction between Choice Set and Self-Control were included as independent predictors. Liking french fries ($\beta = .43$, $\chi^2(1) = 4.08$, $p < .05$) was included as a covariate to reduce error due to individual differences.

Consistent with prior studies and with our theory, results also reveal a significant simple effect of Self-Control such that when no healthy option was available in the choice set, individuals with lower levels of self-control were more likely to select the least healthy option than were individuals with higher levels of self-control ($\beta = -.94$, $\chi^2(1) = 4.26$, $p < .05$). As expected, results show a significant two-way interaction between Choice Set and Self-Control ($\beta = 1.57$, $\chi^2(1) = 9.07$, $p < .01$), as shown in figure 1.

To explore the nature of the interaction, we compared whether there were significant differences across the Choice Set conditions at both low and high levels of Self-Control. As Self-Control is a continuous measure, we followed the procedures recommended by Aiken and West (1991) and outlined in a recent *Journal of Consumer Research* editorial (Fitzsimons 2008) and performed a spotlight analysis at plus and minus one standard deviation from the mean of Self-Control. The planned contrast for participants at low levels of self-control showed that low self-control individuals were less likely to select the least healthy option when a healthy option was available in their choice set compared to when it was not available ($\beta = -1.56$, $\chi^2(1) = 5.31$, $p < .05$). More important, and as predicted in hypothesis 1, the planned contrast for participants high in self-control showed that high self-control individuals were significantly more likely to choose the least healthy option when a healthy option was available compared to when it was not available ($\beta = 2.21$, $\chi^2(1) = 5.70$, $p < .05$).

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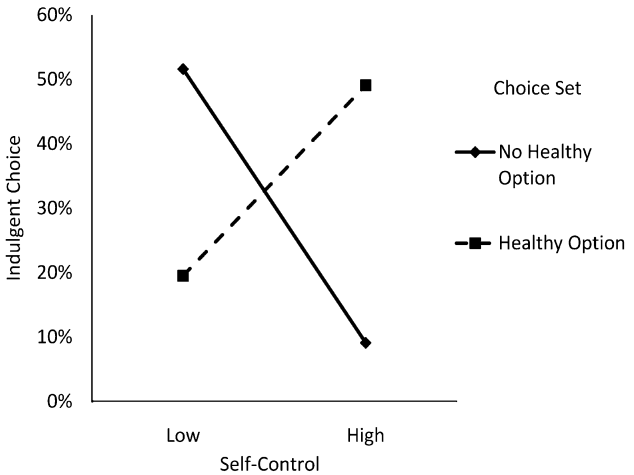
FIGURE 1

STUDY 1: THE EFFECT OF CHOICE SET AND SELF-CONTROL ON INDULGENT CHOICE



NOTE.—Low is one standard deviation below the mean, and high is one standard deviation above the mean.

Discussion

Supporting hypothesis 1, the results from this study demonstrate that the mere presence of a healthy option in a choice set of relatively unhealthy alternatives increases the likelihood of selecting the most indulgent alternative for individuals with high levels of self-control. In line with prior research (Fishbach et al. 2003), higher levels of self-control reduced the likelihood of making an indulgent choice when respondents were asked to choose from a set comprising only relatively unhealthy side dishes. On the other hand, when the choice set included a healthy option, high self-control individuals behaved more like individuals with lower levels of self-control in their choice of a food option, providing support for our contention that the health goals of high self-control individuals were fulfilled by the mere presence of the healthy option. Interestingly, changing food offerings altered the choice patterns of those who are perhaps least likely to make unhealthy decisions when they are not exposed to such contextual cues.

As this research is the first to document this ironic effect of including healthy options in food choice sets, in the next set of studies we sought to replicate the results of our first study in order to increase the generalizability of our findings. Therefore, this experiment followed a similar procedure to that of the prior study (1) using different decision-making scenarios, (2) keeping the number of options the same in each Choice Set condition, and (3) using a domain-specific measure of self-control. Specifically, in the next two studies, participants selected an entrée (study 2A) and made a within-category packaged food choice (study 2B). While study 1 choice sets varied in terms of the presence of the healthy option (i.e., healthy option present vs. absent), they also varied in the number of options available for choice (i.e., four vs. three items). In the next set of studies we kept the number of options consistent across conditions. Rather than adding a healthy item to the choice set, we replaced a neutral item, such that participants made their choice from either a set consisting of one unhealthy item and two neutral options or a set consisting of one unhealthy option, one neutral item, and one relatively healthy choice. Thus, all participants made their choice from a three-item choice set. We also used a domain specific, food-related measure of self-control rather than the general measure used in study 1. These studies are described next.

STUDY 2A

Method

Seventy undergraduate students (50% female) participated in this experiment to fulfill a course requirement. Based on results from a prior pretest, conducted using respondents from the same student population, participants were presented with either a No Healthy Option choice set comprising one unhealthy (bacon cheeseburger) and two neutral items (chicken sandwich and fish sandwich) or a Healthy Option choice set consisting of one unhealthy (bacon cheeseburger), one neutral (chicken sandwich), and one healthy item (veggie burger). The choice sets were presented pictorially (see appendix fig. A1). Participants were asked to imagine that they were at a sporting event deciding on a sandwich to have as a meal and were told that each item cost the same amount of money. They were then instructed to choose one option as their entrée.

Participants were next asked to rate the healthiness of each option in the choice set on a 7-point scale (1 = not at all healthy, 7 = very healthy). Results showed that participants perceived the bacon cheeseburger as very unhealthy ($M = 2.01$), the chicken and fish sandwiches as relatively neutral ($M = 3.50$ and $M = 4.02$, respectively), and the veggie burger as relatively healthy ($M = 4.97$). Participants also rated the extent to which they liked each item in the choice set that they viewed on a 7-point scale (1 = do not like at all, 7 = like very much).

Following an unrelated filler task, participants responded to a four-item, 7-point scale adapted from Giner-Sorolla (2001) to measure domain specific Self-Control ("I display a lot of self-control when it comes to eating," "I have a lot of experience controlling my eating behavior," "I tend to engage in indulgent eating more than I should," "I often wish I were able to avoid indulgent eating more often"; the last two items were reversed scored; $\alpha = .73$).

Results

Logistic regression was used to test our predictions. As in study 1, the key dependent variable was Indulgent Choice, coded as one if a participant selected the least healthy item (i.e., the bacon cheeseburger) and zero otherwise. Choice Set was coded as a dummy variable equivalent to one if the

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participant was exposed to the choice set that included the healthy option (i.e., Healthy Option) and zero if the participant was exposed to the choice set that did not include the healthy option (i.e., No Healthy Option). Choice Set, mean-centered Self-Control, and the interaction between Choice Set and Self-Control were included as independent predictors. Liking the bacon cheeseburger was also included as a continuous predictor variable in the analysis, but it was not significant ($\beta = .14$, $\chi^2(1) = .73$, NS).

The main effect of Choice Set on Indulgent Choice was significant ($\beta = 1.58$, $\chi^2(1) = 4.48$, $p < .05$); a greater percentage of respondents made the indulgent choice when a healthy option was present in the choice set (37%) compared to when one was not available (17%). Additionally, and consistent with study 1, there was a significant simple effect of Self-Control such that when no healthy option was included in the choice set, those with low self-control were more likely to select the least healthy option than were those with high self-control ($\beta = -1.71$, $\chi^2(1) = 3.97$, $p < .05$).

More important, there was a significant two-way interaction between Choice Set and Self-Control ($\beta = 2.26$, $\chi^2(1) = 5.42$, $p < .05$; see fig. 2*a*). Subsequent spotlight analysis (Aiken and West 1991; Fitzsimons 2008) revealed that the mere presences (vs. absence) of the healthy option in the choice set increased the likelihood of selecting the most indulgent item for individuals with high Self-Control ($\beta = 3.56$, $\chi^2(1) = 6.68$, $p = .01$) but had no significant effect on Indulgent Choice for those with low Self-Control ($\beta = -.41$, $\chi^2(1) = .25$, NS).

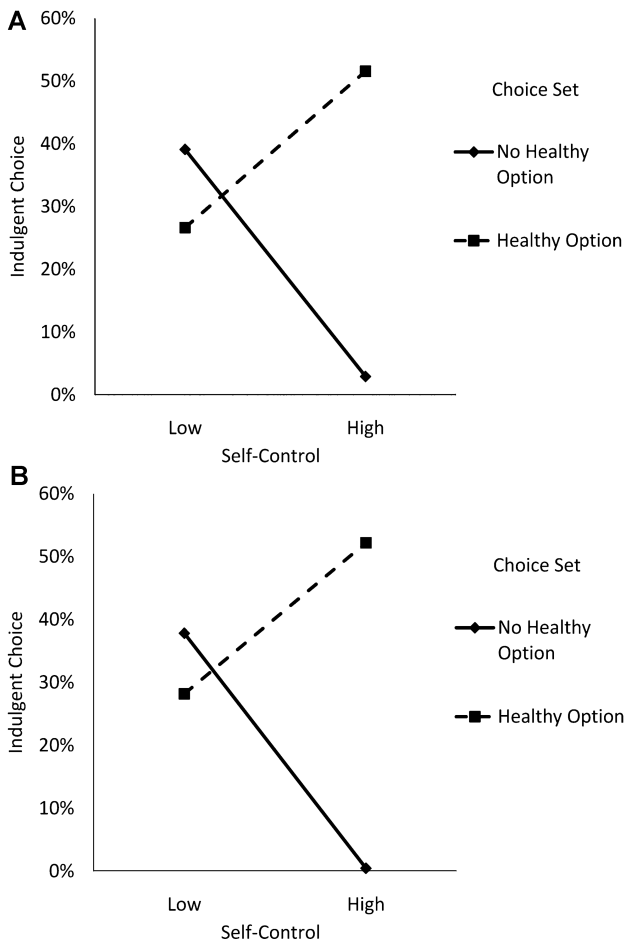
Discussion

These results replicate our study 1 findings. When the choice set consists of all relatively unhealthy options, those with high self-control were less likely to make the indulgent choice compared to those with low self-control. Moreover, as predicted by hypothesis 1, the mere presence of the healthy option in the choice set increased the likelihood of selecting the most indulgent option for individuals with relatively high levels of self-control.

In study 2B, we seek to further increase the generalizability of our results by exploring the effect of including a relatively healthy option in a within-category choice scenario that asks participants to choose from a choice set of snack foods that are members of one product line and are similar in form yet differ in terms of their healthiness. Many food manufacturers have added healthier packaged snack food items, such as lower fat or lower calorie options, as product line extensions to be sold alongside their less healthy counterparts (O'Donnell 2007). We expect to observe similar ironic effects for individuals with high self-control when facing a choice between an unhealthy snack and its healthier counterpart; specifically, we predict that the mere presence of the healthy snack alternative will increase the likelihood of selecting the most indulgent option for high self-control individuals.

FIGURE 2

STUDY 2: THE EFFECT OF CHOICE SET AND SELF-CONTROL ON INDULGENT CHOICE OF ENTRÉE (PANEL A) AND WITHIN-CATEGORY SNACK FOOD (PANEL B)



NOTE.—Low is one standard deviation below the mean, and high is one standard deviation above the mean.

STUDY 2B

Method

Seventy-nine undergraduate students (52% female) participated in this experiment to fulfill a course requirement. Participants were asked to imagine that they were shopping for a snack and were presented with a pictorially represented choice set (see appendix fig. A1) consisting of either chocolate-covered Oreo cookies, original Oreo cookies, and golden Oreo cookies (No Healthy Option), or chocolate-covered Oreo cookies, original Oreo cookies, and 100-calorie Oreo cookies (Healthy Option). A prior pretest conducted using respondents from the same student population from which participants from the main study were selected confirmed that the chocolate-covered Oreos were considered to be very unhealthy, the regular and golden Oreos were

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rated as relatively neutral in terms of healthiness, and the 100-calorie Oreos were considered to be the healthiest alternative. Respondents were told that each item cost the same amount of money and were instructed to choose one option.

Participants were next asked to rate the healthiness of each option in their choice set on a 7-point scale (1 = not at all healthy, 7 = very healthy). Results revealed that, in line with the pretest results, participants perceived the chocolate-covered Oreos to be very unhealthy ($M = 1.99$), the original and golden Oreos as relatively neutral in terms of healthiness ($M = 2.58$ and $M = 2.72$, respectively), and the 100-calorie Oreos as relatively healthy compared to the other options ($M = 3.72$). Participants also rated the extent to which they liked each item in the choice set that they viewed on a 7-point scale (1 = do not like at all, 7 = like very much). After a filler task, participants responded to the same four items that were used to measure domain specific self-control in the prior study ($\alpha = .71$).

Results

Logistic regression was used to test our predictions. As in the prior experiments, the key dependent variable was Indulgent Choice, coded as one if a participant selected the least healthy option (i.e., chocolate-covered Oreos) and zero otherwise. Choice Set was coded as a dummy variable equivalent to one if the participant was exposed to the choice set that included the healthy option (i.e., Healthy Option) and zero if the participant was exposed to the choice set that did not include the healthy option (i.e., No Healthy Option). Choice Set, mean-centered Self-Control, and the interaction between Choice Set and Self-Control were included as independent predictors. Liking the chocolate-covered Oreos was also included as a continuous predictor variable in the analysis, but it was not significant ($\beta = .09$, $\chi^2(1) = .20$, NS).

As in the previous study, the simple main effect of Choice Set on Indulgent Choice was significant ($\beta = 1.20$, $\chi^2(1) = 4.01$, $p < .05$). Specifically, a greater percentage of respondents made the indulgent choice when the choice set included a healthy option (39%) compared to when one was not available (18%). As well, results reveal a marginally significant simple effect of Self-Control demonstrating that those with low self-control are marginally more likely than those with high self-control to choose the most indulgent item in the absence of a healthy option in the choice set ($\beta = -1.06$, $\chi^2(1) = 2.85$, $p < .10$).

In addition, as depicted in fig. 2*b*, there was a significant two-way interaction between Choice Set and Self-Control ($\beta = 1.66$, $\chi^2(1) = 4.73$, $p < .05$). Spotlight analysis (Aiken and West 1991; Fitzsimons 2008) revealed that the mere presence (vs. absence) of the healthy option to the choice set increased the likelihood of choosing the least healthy option for individuals who were relatively high in Self-Control ($\beta = 2.62$, $\chi^2(1) = 6.65$, $p = .01$). The inclusion of the item had no significant effect on choice of the least healthy option for those who were relatively low in Self-Control ($\beta = -.21$, $\chi^2(1) = .09$, NS).

Discussion

Taken together, the prior studies demonstrate support for our contention that the mere presence of a healthy option amid a choice set of relatively unhealthy alternatives increases the likelihood of selecting the most indulgent and least healthy option in the choice set, particularly for individuals with higher levels of self-control. This effect replicates (1) across food-related decision scenarios, (2) whether the number of items in the choice set varies or is held constant across conditions, and (3) for both general and domain-specific measures of self-control.

With the robustness of the effect predicted by hypothesis 1 demonstrated in studies 1, 2a, and 2b, the objective of the next two studies was to explore the underlying process. As stated in hypothesis 2, we posit that the mere presence of the healthy alternative acts to fulfill health-related eating goals for individuals with high self-control, in turn licensing them to select a goal-inconsistent, indulgent alternative. Our next study seeks to provide direct evidence of this mechanism by measuring the accessibility of health-related goals via response times for goal-related word recognition. If, as we expect, goal activation and fulfillment underlies the food choice, then we should find that high self-control individuals exposed to a choice set of tempting alternatives without the opportunity to vicariously fulfill their focal goal (i.e., the No Healthy Option choice set) have more active health-related goals (and, hence, faster response times for recognizing goal-consistent words) compared to low self-control individuals. However, when given the opportunity to vicariously fulfill their focal goal via the mere presence of a healthy option (i.e., the Healthy Option choice set), we should find that high self-control individuals have less accessible health-related goals (and, hence, slower response times for recognizing goal-consistent words) compared to when they are exposed to only the unhealthy options (i.e., the No Healthy Option choice set). We test these predictions next.

STUDY 3

Method

One hundred eighty-three undergraduate students (51% female) participated in the experiment to fulfill a course requirement. Since this experiment focused on goal activation in response to variations in choice sets, our experimental procedure presented participants with different choice sets and then assessed response times to goal-related words. This procedure is consistent with those used in prior research assessing automatic goal activation in response to both subliminal and supraliminal primes (Fishbach et al. 2003; Shah et al. 2002). Accordingly, MediaLab and DirectRT computer-based experimental software was used

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to present the instructions and stimuli, as well as to collect response time measures (Jarvis 2004a; 2004b).

The experiment was run in groups of nine participants, with each individual seated at a private computer terminal. To prepare participants for the lexical decision task used in the main experiment, they began the study with several practice rounds. Participants were informed that they would be presented with several trials in which they were asked to focus on a fixation point (+++) that appeared on the screen and remained for 2 seconds. This was followed by an immediate presentation of a string of letters that either formed a word (e.g., practice) or a nonword (e.g., seldige). Participants were instructed to identify the string of letters as either a word (by pressing the *W* key on their keyboard) or a nonword (by pressing the letter *N* on their keyboard). The instructions informed participants that they should equally weigh the objectives of accuracy (i.e., correct classification of words and nonwords) and speed (i.e., response time). Respondents participated in a total of 10 practice trials, in which an equal number of words and nonwords appeared in random order.

After the practice round, participants were presented with a choice set in accordance with their assignment to the Healthy Option or No Healthy Option condition. We used the same choice sets that were used in study 1, such that respondents in the No Healthy Option condition were presented with a choice set consisting of french fries, chicken nuggets, and a baked potato, while respondents in the Healthy Option condition were shown these items in addition to a healthy salad, but in this study the choice sets were presented pictorially on the computer screen (see appendix fig. A1). Participants were told to imagine that they were trying to decide which side dish they were going to have for lunch and were then instructed to pay careful attention to the available options that were going to appear on the next screen because they would be asked questions about them later. Each choice set remained on the screen for 30 seconds.

Immediately after the choice set presentation, respondents completed a lexical decision task that was similar to the practice round to assess the accessibility of health-related goals. This was done because prior research indicates that, once activated, goal constructs remain active until fulfilled (Förster, Liberman, and Higgins 2004). Since we assume that participants' choices act as a means of goal fulfillment, we sought to minimize any carryover effects that might impact our reaction time assessments by eliminating the choice scenario used in prior studies. Participants were provided with the same instructions with regard to the fixation point, the procedure for identifying words and nonwords, and the goals of accuracy and speed. An equal number of words and nonwords were presented in random order for a total of 64 trials. Embedded within these trials was the target word *healthy*. Response times to this word were used to assess the accessibility of health-related goals, such that faster response times indicate greater accessibility compared to slower response times.

Participants then performed an unrelated filler task, which lasted approximately 15 minutes. Finally, they completed the same 13-item scale used as a measure of Self-Control in study 1 ($\alpha = .79$).

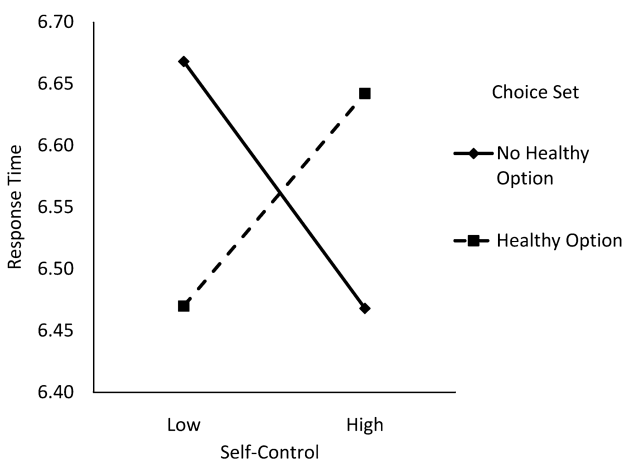
Results

The key dependent variable was Response Time for correctly categorizing the word *healthy* (time: $M = 6.58$; $SD = .36$). Due to the difficulty in interpreting incorrect responses, we only considered correct responses. As is typical with right-skewed response time data, we submitted the data to a natural log transformation and eliminated extremely slow responses (Bargh and Chartrand 2000). The Choice Set condition (i.e., No Healthy Option vs. Healthy Option) was modeled as a dummy variable. Response Time was regressed on Choice Set, mean-centered Self-Control, and the Choice Set by Self-Control interaction. We also included the natural log of respondents' average response time to the other words in the lexical decision task as a covariate to control for individual differences in reaction times (only correct responses were considered; $\beta = .52$, $t = 6.24$, $p < .001$).

As hypothesized, there was a significant two-way interaction between Choice Set and Self-Control ($\beta = .19$, $t = 3.04$, $p < .01$) that is illustrated in figure 3. To explore the nature of the interaction, we compared whether there were significant differences in how accessible a health-related goal was across the Choice Set conditions at both low and high levels of Self-Control. As Self-Control is a continuous measure, we again followed the procedures recommended by Aiken and West (1991) and Fitzsimons (2008) and performed a spotlight analysis at plus and minus one standard deviation from the mean of Self-Control. The planned contrast for participants at low levels of self-control

FIGURE 3

STUDY 3: THE EFFECT OF CHOICE SET AND SELF-CONTROL ON RESPONSE TIME



NOTE.—Low is one standard deviation below the mean, and high is one standard deviation above the mean.

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showed that health-related goals were more accessible (as participants were faster to respond to the word *healthy*) when a healthy option was available in the choice set compared to when it was not ($\beta = -.18$, $t = 2.30$, $p < .05$). Of more interest, and as predicted in hypothesis 2, the planned contrast for participants high in self-control showed that health-related goals were less accessible (as participants were slower to respond to the word *healthy*) when a healthy option was available compared to when it was not ($\beta = .16$, $t = 2.08$, $p < .05$).

Additionally, as expected, when there was no healthy item available, those with high self-control had more accessible health goals (faster response time) than those with low self-control ($\beta = -0.10$, $t = -2.18$, $p < .05$).

Discussion

The results of the third experiment are consistent with a goal activation explanation for the findings of our prior studies. When the choice set did not include a healthy option, higher levels of self-control corresponded to faster response times to health-related, goal-consistent words, indicating greater accessibility of these goals, relative to lower levels of self-control. This finding is consistent with prior research that demonstrates that successful self-regulators have stronger facilitative links between goals and temptations that result in the activation of goals in the presence of temptations (Fishbach et al. 2003). Additionally, the response times to health-related, goal-consistent words for high self-control individuals were slower when the choice set did include a healthy option compared to when the healthy option was not included. Thus, when the healthy option was present in the choice set, the health goal was no longer focal for high self-control individuals, having been satisfied by the mere consideration of the healthy option.

In sum, the prior studies have demonstrated support for our proposed effect of the mere presence of a healthy alternative in a choice set of less healthy options, as well as for the contention that differential processes of goal fulfillment underlie our findings. In our final study, we sought to demonstrate additional support for our proposed goal fulfillment process and to explore an additional inquiry emerging from the prior studies—the reasons that goal fulfillment results in a choice of the most indulgent option in the choice set.

Prior research on goal-derived categories in the eating domain demonstrates that active eating-related goals affect the perceived similarity of food items in terms of their healthiness. Specifically, Ratneshwar and colleagues (2001) show that accessible health goals lead individuals to rate food items with different levels of healthfulness as less similar to one another, while individuals with less accessible health goals rate such items as more similar to one another. Since salient health goals should lessen the perceived similarity of food options with varying degrees of healthfulness, while fulfilled health goals should increase it, we used a categorization procedure in study 4 to provide further support for our process of vicarious goal fulfillment, as specified in hypothesis 2. Specifically, if goal fulfillment processes underlie the observed effects of the mere presence of the healthy alternative in the choice set, then we would expect the presence of the healthy item to increase the perceived similarity of the items for individuals with high self-control compared to when the healthy item is not present. In other words, additional evidence of goal fulfillment based on the mere presence of a healthy option is obtained if high self-control individuals rate the items as (1) less similar in the absence of a healthy item (because health goals are more accessible) and (2) more similar in the presence of a healthy item (because health goals have been fulfilled). Note that our theorizing holds for high self-control individuals; since extant categorization theory is silent for individuals with low levels of self-control, we make no formal predictions about this group.

Moreover, thus far we have not addressed the process underlying why the most indulgent item (e.g., the fries) gets selected. We predict that once healthy eating goals are fulfilled and perceived similarity among items in the choice set is high, high self-control individuals will pay more attention to the most indulgent option in the choice set. In the eating domain, self-control dilemmas are defined as trade-offs between the desire to consume healthy items and the desire to indulge (Hoch and Loewenstein 1991). In line with research that shows that once a focal goal is accomplished, the effort is transferred to alternative goals (Lauro, Pieters, and Zeelenberg 2007), it follows that once healthy eating goals are fulfilled, the desire to indulge is likely to become salient. Thus, consumers are likely to make a choice that maximizes indulgence rather than selecting an option that balances indulgence with healthfulness.

Along these lines, we predict that the licensing effect generated by the mere presence of the healthy alternative does not merely result in the selection of a less healthy option but, rather, the least healthy, most indulgent option. This is also consistent with Polivy and Herman's (1985) "what the hell effect," which suggests that once individuals abandon goal-directed behavior (i.e., decide not to choose a healthy option), they are less likely to take the middle ground (i.e., select a compromise option) and more likely to maximize the extent of their failure to behave in line with the goal (i.e., select an extremely indulgent option).

In sum, if high self-control individuals are given the opportunity to vicariously fulfill their focal goal via the mere presence of a healthy option, then once this goal is less salient, they should perceive the items in the choice set as more similar to one another (Ratneshwar et al. 2001). Importantly, if the goal has been fulfilled, we expect high self-control individuals to focus their attention on the most indulgent item in the choice set. We explore these predictions next.

STUDY 4

Method

Eighty-one undergraduates (51% female) participated in this study as part of a course requirement. As in prior studies, participants were randomly assigned to one of two Choice

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Set conditions (Healthy Option vs. No Healthy Option). We used the same choice sets used in studies 1 and 3, such that respondents in the No Healthy Option condition were presented with a choice set consisting of french fries, chicken nuggets, and a baked potato, while respondents in the Healthy Option condition were shown these items in addition to a healthy salad (see appendix fig. A1). Participants were told to imagine that they were selecting a side dish to accompany their meal and that each item cost the same amount of money.

After viewing the choice set, respondents completed a categorization task to determine the extent of perceived similarity among the choice set options. Respondents were presented with blank circles representing potential groupings or categories of items. They were asked to assign the menu items to a group based on the extent to which they perceived the items to be similar to one another by writing the name or names of items in the blank circles. A Similarity score ranging from one to three was calculated for each individual based on the categorization of the least healthy menu option (i.e., french fries); a score of one was assigned when fries were categorized with no other items, a score of two was assigned when fries were assigned with one other option (i.e., the baked potato or chicken nuggets), and a score of three was assigned when the fries were assigned with two other options (i.e., the baked potato and chicken nuggets), such that higher scores corresponded to a greater rating of perceived similarity across choice set items.

Next, we measured attention to the choice set items by asking respondents to imagine that they were deciding between the options. They were then asked to indicate the percentage of time they would spend considering each option while making their choice. Following an unrelated filler task, participants completed the same assessment of Self-Control used in studies 1 and 3 ($\alpha = .86$).

Results

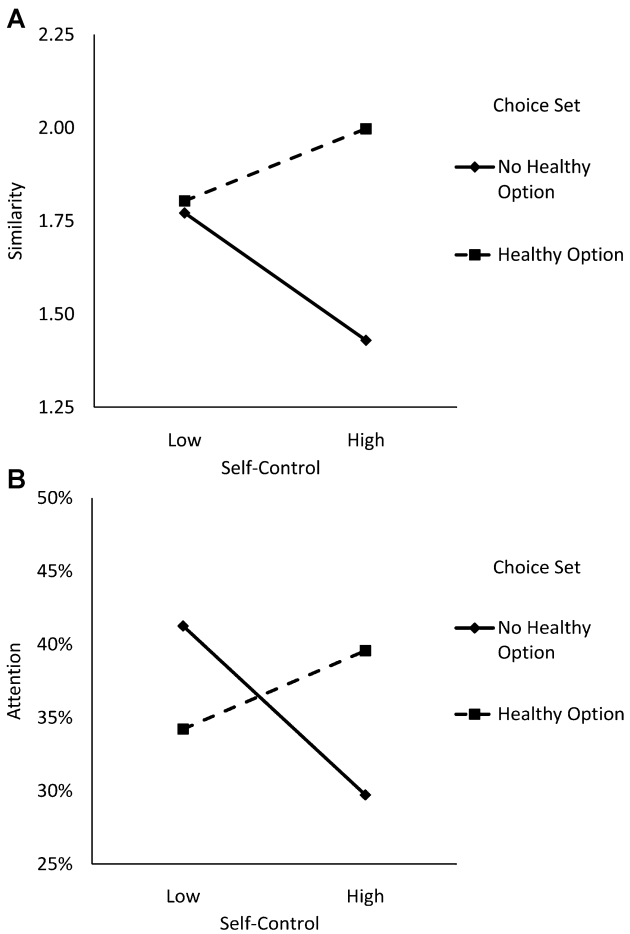
Similarity. Regression analysis was used to test our prediction that the addition of the healthy option to the choice set increased the perceived similarity between the most indulgent option (i.e., french fries) and other options in the choice set for individuals with high self-control, demonstrating further support for hypothesis 2. The key dependent variable was Similarity. Choice Set was coded as a dummy variable equivalent to one if the participant was exposed to the choice set that included the healthy option (i.e., Healthy Option) and zero if the participant was exposed to the choice set that did not include the healthy option (i.e., No Healthy Option). Choice Set, mean-centered Self-Control, and the interaction of these variables were included as independent predictors.

As depicted in figure 4*a*, the simple main effect of Choice Set on Similarity was significant ($\beta = .15$, $t = 2.56$, $p < .05$), such that the french fries were perceived to be more similar to the other items in the choice set when the healthy option was present compared to when it was not.

Moreover, there was a significant interaction effect of Choice Set and Self-Control ($\beta = .25$, $t = 2.16$, $p < .05$), which is illustrated in figure 4*a*. We next performed a spotlight analysis (Aiken and West 1991; Fitzsimons 2008) at plus and minus one standard deviation from the mean of Self-Control to explore the nature of the interaction. The planned contrast for participants at low levels of self-control showed that there was no difference in Similarity between Choice Set conditions ($\beta = .04$, $t = .26$, NS). However, as hypothesized, the planned contrast for participants high in self-control showed that high self-control individuals perceived the french fries as more similar to the other nonsalad items when the salad was included in the choice set compared to when it was not available as an option ($\beta = .56$, $t = 3.33$, $p = .001$).

FIGURE 4

STUDY 4: THE EFFECT OF SELF-CONTROL AND CHOICE SET ON PERCEIVED SIMILARITY AND ATTENTION TO THE INDULGENT OPTION



NOTE.—Low is one standard deviation below the mean, and high is one standard deviation above the mean.

Attention. Regression analysis was used to see if adding the healthy option to the choice set increases the attention

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paid to the french fries for individuals who are high in self-control. The key dependent variable was Attention, which was the self-reported measure of the time spent considering french fries in relation to the total time spent considering the relatively unhealthy options in the choice set (i.e., french fries, chicken nuggets, and the baked potato). Attention was regressed on Choice Set (1 = Healthy Option; 0 = No Healthy Option), mean-centered Self-Control, and the Choice Set by Self-Control interaction. As illustrated by figure 4*b*, there was no significant simple main effect for the Choice Set condition ($\beta = .01, t = .35$, NS), but the Choice Set by Self-Control interaction was significant ($\beta = .08$, $t = 2.07, p < .05$). Subsequent spotlight analysis (Aiken and West 1991; Fitzsimons 2008) revealed that the addition of the healthy option to the menu increased Attention for individuals who were high in self-control ($\beta = .10$, $t = 1.71$, $p < .10$) but that there was no significant affect of Choice Set on Attention at lower levels of self-control ($\beta = -.07$, $t = -1.23$, NS).

Mediation. Next, we conducted as test for mediated moderation to assess whether the interaction effect of Self-Control and Choice Set on Attention was mediated by Similarity. This was accomplished by following the steps suggested by Muller, Judd, and Yzerbyt (2005) to test for mediated moderation. The first model is the previously discussed analysis of Attention, which establishes overall moderation of the independent variable (Choice Set). The significant interaction between Self-Control and Choice Set in this analysis provides initial support for mediated moderation. The second model is the previously discussed analysis of Similarity, which demonstrated that there is a significant simple effect of Choice Set on the mediator (Similarity)—providing additional support for mediated moderation. The third model adds the mediator (Similarity) and the interaction between Similarity and Self-Control as independent predictors to the first model to determine if the overall moderation of the independent variable depends on the mediator. Our analysis demonstrated that there was a significant Similarity by Self-Control interactive effect on Attention ($\beta = .08$, $t = 2.44$, $p < .05$), and the magnitude of the Choice Set by Self-Control interaction was reduced from $\beta = .08$ ($t = 2.07$, $p < .05$; see above) to $\beta = .05$ ($t = 1.24$, NS). This pattern of results across the three models supports Similarity as a mediator of the effects of Self-Control and Choice Set on Attention.

Discussion

The results of the fourth experiment provide additional support for a goal activation explanation of the findings. When the choice set included a healthy option, it increased the perceived similarity between the most indulgent option and the other relatively unhealthy options for individuals who were high in self-control—a pattern that is consistent with goal fulfillment. This, in turn, led high self-control individuals to focus more of their attention on the most indulgent option in the choice set. In sum, these results provide additional support for a vicarious goal fulfillment process underlying the results of studies 1 and 2 and explain why vicarious goal fulfillment increases the likelihood of selecting the most indulgent option in the choice set.

GENERAL DISCUSSION

The objective of this research was to understand how adding healthy items to food choice sets, a practice growing in popularity among food retailers, affects consumer choice. Across four studies, we show that higher levels of self-control decrease the likelihood of making an indulgent choice from choice sets consisting of relatively unhealthy items but increase the likelihood of indulging when a healthy item is included alongside these items. Thus, the ironic effect attributed to the mere presence of the healthy item is greater for those individuals who actively regulate behavior and are less likely to make unhealthy decisions in the absence of such cues.

Specifically, the mere presence of the healthy alternative acts to fulfill health-related eating goals for individuals with high self-control. While study 3 assesses goal fulfillment via response time measures, study 4 uses a categorization approach to demonstrate vicarious goal fulfillment. In study 4, we show that the presence of the healthy item increases the perceived similarity of the items for individuals with high self-control compared to when the healthy item is not present. Importantly, we show that once healthy eating goals are fulfilled and perceived similarity among items in the choice set is high, high self-control individuals pay more attention to the most indulgent option in the choice set. Thus, study 4 demonstrates that high self-control individuals increase the amount of attention paid to the most indulgent option in the choice set, thus explaining why the most indulgent option, rather than any indulgent option, is chosen.

The most obvious implication of these findings is that, despite the rush to offer healthier food alternatives, this trend may be doing little to alleviate the deeper societal issue of rising waistlines. Our finding is corroborated by anecdotal industry wisdom from Darren Tristano, an executive vice president at a food-industry research and consulting firm: "What people say they want and what they do don't match up. If they say, 'I'm gonna order more salads,' they're going to order more french fries" (Keohane 2008, 95). Interestingly, while the waistlines of many consumers might be suffering as a result of the inclusion of healthier menu options, food retailers appear to be reaping substantial benefits. For instance, a recent consumer loyalty study ranks McDonald's as the front-runner in the fast-food category (Hein 2008). Typically low in the rankings, McDonald's turnaround performance this year has been attributed, in part, to the inclusion of healthier alternatives that increase menu variety. Thus, while the inclusion of healthy items is driving some consumers to make less optimal food choices, it appears to be increasing their satisfaction with food retailers and, perhaps, the choices themselves. Along these lines, an investigation of the affective content of food choices in the

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presence or absence of healthy food alternatives would constitute an important direction for future research.

The present work contributes to extant literature that explores contextual cues that impact food-related decision making. For instance, our findings are consistent with related research by Fishbach and Zhang (2008) that compares presentation formats of goal- and temptation-related options on consumption. The authors found that when unhealthy food (e.g., chocolate) and healthy food (e.g., carrots) are presented in a format that creates perceptual distance between the options (e.g., in different piles), respondents perceive that the two items are competing with each other, resulting in greater preference for the healthier, goal-consistent option. However, when the two alternatives are presented in a format that reduces the perceptual distance between them (e.g., in the same pile), the items are viewed a complementing each other, which leads individuals to distance themselves from their goal and demonstrate greater preference for unhealthy food. Future research might examine how perceptual distance influences preference for unhealthy items when a healthy alternative is added to a choice set compared to when it is not an option. It is possible that the increase in preference for the least healthy option, resulting from the addition of the healthy option, could be minimized by presenting the healthy alternative in a format that increases the perceptual distance between the two items, such as explicitly labeling the item as a "new and healthy" addition to the choice set. Exploring these or other formats that result in goal-consistent, rather than indulgent, decisions represents an important direction for future research.

Extant research also considers the role of self-control in future consumption decisions. The results of Fishbach and Zhang (2008) show that when healthy and unhealthy food items are presented together, individuals show greater immediate preference for the unhealthy item and delayed preference for the healthy item. In effect, the ability to balance out the indulgent decision with healthy consumption in the future legitimizes indulgent choices. Interestingly, the role of balancing is not limited to future food-related decisions; Bolton, Cohen, and Bloom (2006) show that individuals express greater intentions to engage in risky behaviors (e.g., eating high-fat foods) when they believe that they have access to remedies for the assumed risk (e.g., access to a fat-fighting pill). Perhaps the tendency to adopt such balancing strategies for multiple consumption episodes is stronger for high self-control individuals who anticipate exerting self-control in future behavior (e.g., "I see the salad, and now that I know that I can consume it next time I will indulge in the fries today"). While our work focuses on immediate decisions when very healthy options are included in food choice sets, the consideration of delayed consumption and sequential food decisions constitute important directions for future research both to shed light on consumer decision making and to suggest strategies for strengthening defenses in the face of tempting alternatives and reducing the influence of contextual cues in food-related decision making (Geyskens 2006).

Our work also contributes to our general understanding of processes of goal fulfillment. While prior work on the licensing effect has shown that progressing toward (or even intending to progress toward) goals provides individuals with the license to temporarily disengage from a goal to pursue tempting alternatives (Fishbach and Dhar 2005; Khan and Dhar 2006), we show that merely considering goal-consistent behavior produces a similar licensing effect. In addition to its implications for food-related decision making, this finding may be important in understanding decisions in other consumption domains. For instance, does merely considering your options for retirement investing fulfill your goal to be economically responsible and license you to a day of frivolous shopping? Does merely considering spending a Sunday catching up on work fulfill your work-related goal and give you license to play a round of golf? Exploring this process in other consumption domains, particularly those in which self-control dilemmas are frequently experienced, may reveal similar ironic and important consequences.

Our research also points to several interesting directions for future studies on individual differences in self-control. In this article, we demonstrate that merely considering a healthy option temporarily licenses indulgent behavior for individuals who are high in self-control but not for those who are low in self-control. Future studies may want to consider how such behavior affects subsequent preference. It is possible that those with high self-control may delay compensatory virtuous behavior following indulgence longer than those with low self-control either because they feel that their previous "good" behavior has earned them the right to indulge or because they anticipate being able to make up for their "bad" behavior in the future. Another interesting area of research would be to examine how the presence of others differentially affects preference for those with high and low self-control. Could the presence of others lead to more virtuous behavior for those with high self-control but result in greater indulgence for those with low self-control?

Individuals frequently encounter self-control dilemmas in which long-term goals conflict with temptations. While self-control offers a mechanism by which temptations can be avoided, this and other research points to contextual cues that can hinder the accessibility of goals and, in turn, self-control processes. In the eating domain, as well as in other arenas, inhibiting temptations carries important consequences for consumers as well as for society as a whole. Thus, an understanding of goal fulfillment processes is of substantial importance for understanding consumer behavior at the individual level, as well as broader issues such as the U.S. obesity epidemic. Along these lines, we regard the current research as well as future work in this area to be of substantial importance.

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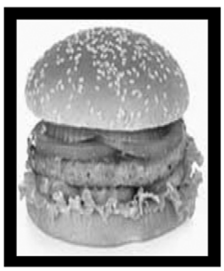
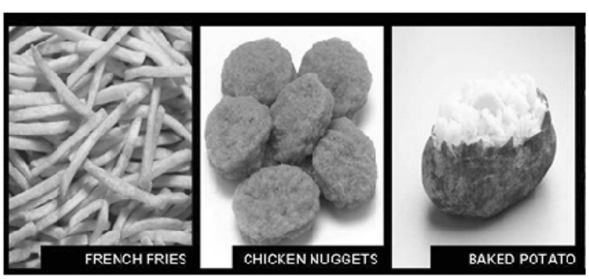
APPENDIX

STUDY STIMULI

FIGURE A1

	Study	Choice Set	
		No Healthy Option	Healthy Option
Sporting Event Menu	Study 2a		
Snack Menu	Study 2b		
Lunch Menu	Studies 3 and 4		

NOTE.—Color version available as an online enhancement.

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