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McHealthy: How Marketing Incentives Influence Healthy Food Choices

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Keywords
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Elisa K. Chan[1], Robert Kwortnik[2], and Brian Wansink[2]

Abstract

Food choices are often habitual, which can perpetuate unhealthy behaviors; that is, selection of foods high in sodium, saturated fat, and calories. This article extends previous research by examining how marketing incentives can encourage healthy food choices. Building on research examining marketing incentives, temporal goals, and habitual behavior, this research shows that certain incentives (behavioral rewards vs. financial discounts) affect individuals with healthy and less healthy eating habits differently. A field study conducted at a corporate cafeteria and three lab studies converge on a consistent finding: The effects of marketing incentives on healthy food choice are particularly prominent for people who have less healthy eating habits. Results showed that behavioral rewards generated a 28.5% (vs. 5.5%) increase in salad sales; behavioral rewards also led to 2 pounds more weight loss for individuals with less healthy eating habits. The research offers important implications for scholars, the food industry, consumers, governments, and policy makers.

Keywords

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> Habit is habit and not to be flung out of the window by any man, but coaxed downstairs a step at a time.
>
> —Mark Twain in Pudd'nhead Wilson

Introduction

Obesity in the United States has become a critical health concern, with 35.7% of adults and 18.4% of children and adolescents classified as obese (National Center for Health Statistics, 2010, 2013). The restaurant industry is often targeted as a culprit in the obesity epidemic; however, giving consumers healthy food options does not mean they will choose them (Wansink, 2014). For example, when McDonald's added an apple-slices option (vs. French fries) to a meal bundle, 88% of customers were aware of the choice, but only 11% selected the healthier alternative ("McDonald's Bows to Pressure With More Healthful Happy Meal," 2011). When it comes to food consumption, people rely on habitual behaviors that emerge from frequent and repeated choices (Aarts & Dijksterhuis, 2000; Ouellette & Wood, 1998). Thus, when consumers walk into McDonald's, habits often dictate their selection of French fries irrespective of what other options are available.

Consumer researchers have neglected the influence of habits on food choices except for Khare and Inman (2006), who suggested that to conserve cognitive resources, consumers make food choices habitually and based on contextual cues. These researchers found carryover effects of good or bad nutritional intake within meals (e.g., breakfast to breakfast) as well as across meals (e.g., breakfast to lunch). Embedded in this generalized eating pattern and the McDonald's example described above is a critical implication: Food choices are likely to be perpetuated due to habit, which is especially alarming for individuals whose habits are unhealthy.

Building on research in the areas of marketing incentives, temporal goals, and habitual behavior, we propose that different types of marketing incentives such as behavioral rewards (e.g., loyalty programs) and financial discounts (e.g., price reductions) are associated with distal and proximal temporal frames, respectively. Moreover, individuals with healthy and less healthy eating habits experience different accessibility of goals when making food decisions. In particular, the distal health goal is more accessible for people with healthier eating habits, but the proximal indulgence goal is more accessible for people with less healthy eating habits. Based on these differences, we propose that different types of marketing incentives will elicit different responses from people with healthy versus less healthy eating habits.

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We begin by reviewing the literature on marketing incentives, temporal goals, and habitual choice. We next specify hypotheses for the effect of incentives on food choices and how individuals with healthy versus unhealthy eating habits react to incentives. We examine these incentive effects and illuminate the process through which the effects operate in three lab studies and a field study. Study 1 shows that different marketing incentives induce choice for healthy (salad) versus unhealthy (fries) foods. Studies 2 and 3 examine the incentive effects for people with different eating habits: Study 2 looks at people's purchase frequencies of healthy and unhealthy food, and Study 3 uses body mass index (BMI) as a proxy for one's eating habits. Results of all studies converge on the finding that behavioral rewards (vs. financial discounts) encourage healthy (vs. unhealthy) food choice among individuals with less healthy (vs. healthier) eating habits. Study 4, a field study, similarly reveals that incentives affect actual food choice and weight loss for overweight diners of a corporate cafeteria. Finally, we discuss the implications of our findings for researchers, consumers, managers, and policy makers. The main finding of this research is that behavioral rewards can encourage consumers to make healthier choices and are an effective way to increase loyalty for food service providers.

Conceptual Framework

Financial discounts and behavioral rewards are two common types of marketing incentives. Financial discounts usually refer to immediate financial incentives such as price reductions; behavioral rewards typically pertain to the accumulation of dollar-amount purchases or reward points that are redeemable for cash, store credit, or merchandise at a later point in time (Henderson, Beck, & Palmatier, 2011). The incentive offered by financial discounts is paid off immediately and that offered by behavioral rewards is delayed. While each type of incentive has been studied independently in marketing research, we look at the comparative effectiveness of these two marketing incentives, which we refer to as the incentive effect.

Research investigating marketing incentives has identified reward value, required effort, and reward immediacy as factors that most affect the incentive effect on choice; however, findings are often contradictory. For example, Soman (1998) reported that larger reward face value (US$40 off vs. US$20 off) increases choice, and this positive effect of face value is more prominent when the reward is delayed. In contrast, other research showed that larger reward value in the future is preferred less when it is pitted against an immediate smaller award due to value discounting (Hoch & Loewenstein, 1991; Kirby & Herrnstein, 1995; O'Donoghue & Rabin, 1999). Furthermore, effort to attain an immediate reward (e.g., getting a rebate from a near vs. a far location) reduces choice, but this is not the case for delayed rewards because people tend to disregard future effort (Soman, 1998).

Contradicting results also have been reported for the incentive effect (immediate discounts vs. delayed behavioral rewards). Some researchers suggest that consumers prefer financial discounts over behavioral rewards (Leenheer, van Heerde, Bijmolt, & Smidts, 2007) due to motivations to avoid effort (Dowling & Uncles, 1997) and to counteract attempts of companies to control their behavior (promotion reactance; Kivetz, 2005). However, others show that behavioral rewards are more conducive to customer retention; even though both types of incentive affect purchase volume and visits, behavioral rewards tend to exert stronger influence due to the ability to lock-in customers (Lewis, 2004; Liu, 2007; Singh, Jain, & Krishnan, 2008; Zhang & Breugelmans, 2012).

The current study extends marketing incentive research in the following ways. We propose that besides reward value and effort, temporal focus induced by marketing incentives is another factor that systematically affects choice. Marketing incentives such as financial discounts that offer an immediate payout direct attention to the present, but incentives such as behavioral rewards that offer a delayed payout heighten attention to the future. The potential effects that incentives have on temporal focus are especially relevant for food consumption that has been shown to be influenced by temporal focus. Consequently, we also propose that financial discounts and behavioral rewards are effective for different types of products, which may reconcile contradicting results found in the past concerning the comparative effectiveness of the two marketing incentives.

Do Behavioral Rewards Increase Healthy Food Choice by Focusing on the Future?

Temporal perspective at the time of choice is important in food consumption because food decisions are often a tug of war between temporal goals: an immediate desire to indulge and a distal desire to maintain health (e.g., Fishbach, Friedman, & Kruglanski, 2003; Wertenbroch, 1998). Food choice is contingent on an individual's temporal focus salient at the time of the decision: When attention is focused at proximal time, consumers tend to pick more indulgent, unhealthy foods; yet when attention is directed at distal time, consumers tend to choose more healthful foods (Laran, 2010; Milkman, Rogers, & Bazerman, 2010; Read, Loewenstein, & Kalyanaraman, 1999; Read & van Leeuwen, 1998). For example, when the delivery date was far (5 days later) versus near (tomorrow), customers of an online grocery store purchased more healthy foods such as vegetables and fruits than unhealthy foods such as ice creams and cookies (Milkman et al., 2010). Similarly, people were more likely to choose a piece of fruit if it were to

be consumed 1 week later but were more likely to choose a chocolate bar if it were to be consumed immediately (Read & van Leeuwen, 1998).

A financial discount offers an immediate incentive, but behavioral rewards offer an incentive at some future time. We propose that the unique temporal payout of each incentive makes salient different temporal frames: Financial discounts make one focus on the present, but behavioral rewards trigger a future-oriented perspective, which in turn, affects food choice.

Hypothesis 1 (H1): Incentives (behavioral rewards vs. financial discounts) will influence food choice. In particular, (a) behavioral rewards will encourage healthy food choice more so than will financial discounts, and (b) financial discounts will encourage unhealthy food choice more so than will behavioral rewards.

The underlying cause of the proposed effects of temporal focus on food choice is the notion that people focusing on the future are better able to exercise self-control than people focusing on the present. Self-control is defined as making decisions in accordance with one's high-level rather than low-level concerns (Fujita, Trope, Liberman, & Levin-Sagi, 2006; Trope & Fishbach, 2000). Self-control is facilitated by factors that draw attention to the future, therefore heightening high-level concerns, but self-control is hindered by factors that bring focus to the present, which counteracts the high-level concern (Fujita et al., 2006). Consequently, the accessibility of the high-level concern determines whether a behavior will be in line with or opposed to the high-level concern. In the food consumption context, the high-level (low-level) concern is the distal health (proximal indulgence) goal. Accordingly, the ability of a marketing incentive to focus attention on the future to strengthen the health goal will more likely lead to a healthy food choice; the counterinfluence of an incentive to draw attention to the present will induce the indulgent goal and facilitate an unhealthy food choice. The incentive payout structure of a behavioral reward versus a financial discount will prime a heightened focus on the future versus the present, respectively.

Hypothesis 2 (H2): The incentive effects specified in **H1** are mediated by temporal goals. In particular, (a) behavioral rewards will heighten a distal health goal, and (b) financial discounts will heighten a proximal indulgence goal.

Why People With Different Eating Habits React Differently to Marketing Incentives

Habits can be categorized into good (i.e., the more of an activity one engages in, the happier one is in the future) or bad (i.e., the more of an activity one engages in, the less happy one is in the future; Rabin, 2011). Individual differences in eating habits, just like any other habit, can be broadly categorized into good versus bad, which are reflected in food choices and eating behaviors. For example, obesity is linked to regular consumption of fast foods, snacks, sweets, desserts, sweetened soft drinks, and large portion sizes (Drewnowski & Darmon, 2005), which constitute less healthy (bad) eating habits. Arguably, if healthy and unhealthy eating habits are linked to different food consumption behaviors, then it follows that these distinct behaviors reflect the presence and influence of different goals; that is, a health goal versus an indulgence goal. As a result, it is likely that food consumption is associated with distinct accessibility of goals for consumers with healthy and unhealthy eating habits. However, how eating habits may systematically influence motivation in making food choices has yet to be examined.

Food decisions are often viewed as conflict between an immediate desire to indulge and a distal desire to maintain good health, and the resultant behavior reflects either a success (resisting a tempting, unhealthy food) or failure (yielding to a tempting, unhealthy food) in exerting self-control (Hoch & Loewenstein, 1991; Wertenbroch, 1998). Research has shown that when a tempting, unhealthy food is prompted, an overarching health goal will be activated to override an immediate indulgence goal (Fishbach et al., 2003). Yet, this automatic, self-regulatory mechanism operates more efficiently for individuals with stronger self-control. Following this logic, over time, during which countless food decisions are made, self-control is developed as one repeatedly pursues a health goal, thereby forming healthy eating habits represented by the association between food consumption and a more accessible health goal. Likewise, a person who lacks self-control is more likely to succumb to temptation and repeatedly pursue the indulgence goal, forming less healthy eating habits represented by the association between food consumption and a more accessible indulgence goal.

Given the accessibility of different goals and elicitation of corresponding behaviors, an explicit prompt of a healthy food option is expected to trigger different reactions among people with healthy versus less healthy eating habits. Although a healthy option is in line with the already activated health goal for people with healthy eating habits, it is in conflict with the more accessible indulgence goal for people with less healthy eating habits. The reverse is true for an unhealthy food option: It is in line with the readily activated indulgence goal for people with less healthy eating habits, but in conflict with the more accessible health goal for people with healthy eating habits. Competing goals are cognitively taxing and lead to reliance on external information to guide food consumption decisions (Baumeister, Bratslavsky, Muraven, & Tice, 1998; Muraven, Tice, &

Baumeister, 1998). Thus, when experiencing goal conflict, behavior will be driven by whichever goal is made more salient by contextual cues (LeBoeuf, Shafir, & Bayuk, 2010; McFerran, Dahl, Fitzsimons, & Morales, 2010; Shah & Kruglanski, 2002); in this case, marketing incentives. Subsequently, the proposed incentive effect should be more prominent for people who are experiencing goal conflict.

Hypothesis 3 (H3): The relationship between incentives and temporal focus as specified in **H2** is moderated by eating habits. In particular, (a) behavioral rewards will be more effective in inducing healthy food choice than financial discounts for individuals with less healthy eating habits and (b) financial discounts will be more effective in inducing unhealthy food choice than behavioral rewards for individuals with healthy eating habits.

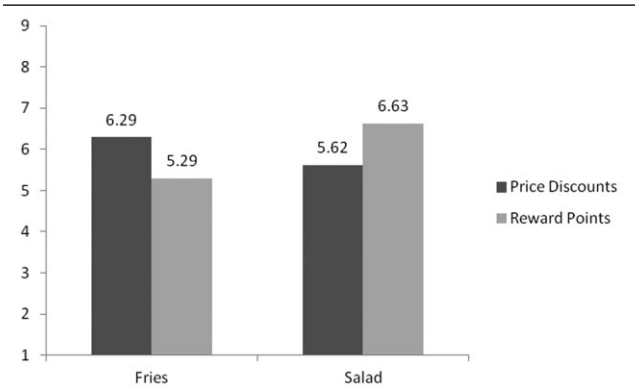

Exhibit 1:
Study 1: Behavioral rewards only increase intention to purchase healthy food.
Note. 1 = *strongly disagree* and 9 = *strongly agree.*

Study 1: Can Behavioral Rewards Make Consumers Choose Salad Over Fries?

In line with the above reasoning, the incentive effect should operate such that behavioral rewards (financial discounts) encourage healthy (unhealthy) food choice. Alternative hypotheses, which corroborate past marketing incentive research, are that either behavioral rewards or financial discounts encourage food choice more so than the other regardless of food type. Study 1 is conducted to examine our hypotheses and to rule out the alternative explanations.

Method

This study used a 2 (incentives: reward points vs. financial discounts) × 2 (type of food: salad vs. fries) experimental design. We collected data from 200 students at a Northeastern university (55.5% female). Participants read a scenario that asked them to imagine themselves ordering lunch at McDonald's. He or she decides to get a combo meal that includes a burger, drink, and fries or salad (price = US$6.50). Participants were randomly assigned to one of four experimental groups. They were either told that they will be given an incentive for choosing salad (salad condition) or fries (fries condition). Within each food condition, they were either given reward points or a price discount for choosing the target food. The reward-points group was told that they would receive 50 points equivalent to 50 cents on a points-collection card redeemable for future purchases if they chose the target. The price-discount group was told that they would receive 50 cents off the price of the combo meal. In all conditions, participants read that the promotion will continue for a month. During the month, every time they chose the target food, they received 50 cents off (price-discount condition) or 50 points (reward-points condition). Finally, participants responded to the following: two goal salience questions, "The reward points (vs. price discounts) reminded me of my goal to eat something delicious" and "The reward points (vs. price discounts) reminded me of my goal to eat healthy" on 9-point scales; the main dependent measure, "I will order salad" (salad condition) or "I will order fries" (fries condition) on a 9-point scale; and demographic questions.

Results

To test the incentive effect (H1), we used ANOVA with incentive and type of food as the independent variables and the extent to which the participant agreed with either the statement "I will order salad" (salad condition) or "I will order fries" (fries condition) as the dependent variable. We found a significant Incentive × Food interaction on intention to purchase the target food. Reward points increased intention to order salad and financial discounts increased intention to order fries, $F(1, 194) = 8.2$, $p < .01$. In particular, reward points encouraged intention to order salad significantly more so than did financial discounts, but financial discounts increased intention to order fries significantly more so than did reward points—simple main effects: $F(1, 194) = 4.06$, $p < .05$, for the salad condition; $F(1, 194) = 4.15$, $p < .05$, for the fries condition. Means are depicted in Figure 1.

To test the hypothesized mediation effects (H2), we first conducted separate ANOVAs with incentive and type of food as the independent variables and participants' responses to each of the two goal salience questions as dependent variables. We found a significant Incentive × Food interaction on both health-goal salience and taste-goal salience. As expected, people offered reward points indicated a significantly higher health-goal salience than those

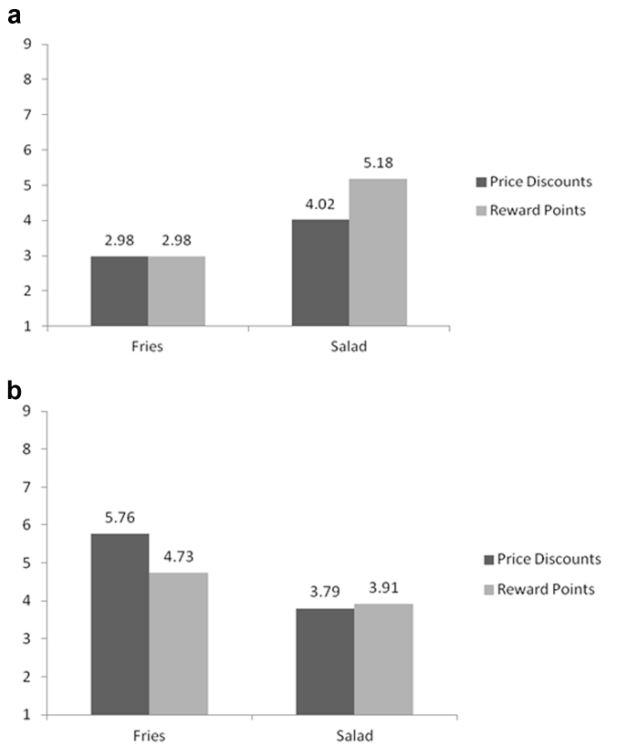

Exhibit 2:
Study 1: Behavioral rewards and financial discounts induce different goals.
Note. (a) DV: Health goal salience; (b) DV: Taste goal salience; 1 = *strongly disagree* and 9 = *strongly agree*; DV = dependent variable.

given price discounts, $F(1, 194) = 3.81$, $p = .05$, but people offered price discounts reported a marginally higher taste-goal salience than those given reward points, $F(1, 194) = 3.7$, $p = .06$. Specifically, reward points induced a higher health-goal salience for the salad condition, $F(1, 194) = 5.99$, $p < .05$, but not the fries condition ($F < 1$); financial discounts induced a higher taste-goal salience for the fries condition, $F(1, 194) = 4.06$, $p < .05$, but not the salad condition ($F < 1$). Means are depicted in Figures 2a and 2b.

To assess whether a health goal mediates the incentive effect in the salad condition and a taste goal mediates the incentive effect in the fries condition, we conducted mediation analyses using the SOBEL SPSS macro (Preacher & Hayes, 2004). For the salad condition, results showed a significant incentive effect on health-goal salience ($\beta = 1.01$, $p < .05$) and a significant health-goal salience effect on intention to purchase salad ($\beta = 1.15$, $p < .05$). The effect of incentive on intention to purchase salad became non-significant after controlling for health-goal salience ($\beta = 0.55$, $p = .26$), but the effect of health goal on intention to purchase salad remained ($\beta = 0.40$, $p < .01$). Moreover, the Sobel Test result showed that $Z = -2.03$ ($p < .05$), and the bootstrapping results based on 5,000 resamples yielded a 95% confidence interval of the indirect effect of [0.06, 1.0], which excluded zero, both of which support that reward points increased intention to purchase salad because of health-goal salience.

For fries, results also showed a significant incentive effect on taste-goal salience ($\beta = -1.0$, $p < .05$) and a significant taste-goal salience effect on intention to purchase fries ($\beta = -1.03$, $p < .05$). The effect of incentive on intention to purchase fries became non-significant after controlling for taste-goal salience ($\beta = -0.48$, $p = .29$), but the effect of taste goal on intention to purchase fries remained ($\beta = 0.50$, $p < .01$). The Sobel Test result showed that $Z = -2.09$ ($p < .05$), and the bootstrapping results based on 5,000 resamples yielded a 95% confidence interval of the indirect effect of [−1.21, −0.06], which excluded zero, both of which support that price discounts induced a taste goal, which then increased intention to purchase fries.

Discussion

Study 1 indicates that marketing incentives can be directed to encourage healthy food purchases. Behavioral rewards such as a reward-points program increased intention to purchase a healthy food more so than did financial discounts. Because we explicitly stated in the scenarios that during the month of the promotion, every time people chose salad (or fries) they received 50 cents off or 50 points equivalent to 50 cents, the total amount of monetary rewards in each condition are equivalent. Consequently, the only difference between the two incentive conditions is when the monetary incentive is received; that is, immediate for price discounts and future for reward points. This temporal difference is reflected in the goal that was made salient by each type of incentive. As shown in the results, people given behavioral rewards became more aware of their health, but those offered financial discounts focused more on satisfying their taste buds. Mediation results also revealed that the specific temporal frames associated with behavioral rewards and financial discounts make the respective health and taste goal more accessible, which in turn drove food choice.

Two questions not answered by Study 1 are addressed in Study 2. The first is whether the observed reward-points outcome is caused by the licensing effect (Khan & Dhar, 2006) rather than the proposed temporal-goal effect. Recall that respondents were told that reward points can be accumulated and redeemed for future purchases; it is possible that they were motivated to eat healthy now so that they can indulge in something unhealthy later (e.g., redeem points for fries), which would be consistent with the licensing effect. The second question pertains to H3, which proposes that the incentive effect on food choice observed in Study 1 depends on people's eating habits. In Study 2, we restrict redemption to items on the healthy menu to rule out the

alternative licensing explanation as well as include a measure of eating habit to test H3.

Study 2: Can Reward Points Make French Fries Lovers Choose Salad?

Method

We recruited 312 adults in the United States to respond to an online survey, keeping 304 in the final sample because eight respondents gave incorrect responses to a manipulation check question (56.5% female, average age = 34). The procedure of Study 2 follows closely that of Study 1 with the exception of the reward points offer for the salad condition. In this study, the reward-points group was told that they would receive 50 points equivalent to 50 cents on a point-collection card redeemable for future purchases on the fast food restaurant's healthy menu. We replaced "McDonald's" with "a fast food restaurant" to access generalizability of the incentive effect. Respondents read one of four scenarios: Fries/Discounts, Fries/Points, Salad/Discounts, or Salad/Points. After reading the scenario, participants responded to the main dependent measure, "I will order salad" (salad condition) or "I will order fries" (fries condition) on a 7-point scale. After responding to this dependent measure, those in the Salad/Points condition also responded to a manipulation check that asked them whether it is true or false that the points could only be redeemed for items on the healthy menu (this question appeared on a separate page, and respondents could not navigate backward).

Next, participants were asked to report either "How many times do you have salad for lunch?" (salad condition) or "How many times do you have fries at lunch?" (fries condition) in a typical week. These questions were used to categorize people into eating habits groups. For the salad condition, people who indicated that they typically do not have salad for lunch (answer = 0) were put into the less healthy habits group and people who typically have salad for lunch multiple times (answer from two to seven) were put into the healthy habits group. The same procedure was used for the fries condition where those who have fries for lunch multiple times a week (answer from two to seven) were categorized as having less healthy habits and those who do not typically have fries for lunch (answer = 0) were categorized as having healthy habits.

Finally, participants responded to measures for health- and taste-goal salience and demographic questions. For health-goal salience, we used a three-item measure (adapted from Chandon & Wansink, 2007): "I am motivated to be healthy," "Eating healthily is important to me," and "It is my health that is most important." For taste-goal salience, we used a three-item measure (items adapted from Li, 2008): "I am motivated to eat something delicious," "My decision is mainly determined by whether I want it or not at this moment," and "I would have good things happen sooner rather than later."

Results

For each food, data were submitted to an ANCOVA with incentive, eating habits, and the interaction of Incentive × Eating Habits as independent variables; age and gender as covariates; and the measure, "I will order salad" (salad condition) or "I will order fries" (fries condition), as the dependent variable. As expected, a significant Incentive × Eating Habits interaction was found in both food conditions. For salad, reward points increased the intention to choose salad more so than price discounts only for people with less healthy eating habits (i.e., non-salad eaters), $F(1, 153) = 4.36$, $p < .05$. Simple main effects analysis revealed that the means of the two less healthy habits groups are significantly different, $F(1, 153) = 7.96$, $p < .05$, but those of the healthy habits groups are not ($F < 1$). Means are depicted in Figure 3a.

We repeated the same analyses for fries. Price discounts encouraged the choice of fries more so than did reward points only for people who have healthy eating habits (i.e., non-fries eaters), $F(1, 137) = 3.69$, $p < .05$. Simple main effects analysis revealed that the means of the two healthy eating habits groups are marginally different, $F(1, 137) = 3.54$, $p < .10$, but those in the less healthy habits groups are not ($F < 1$). Means are depicted in Figure 3b.

If the incentive mechanism follows our predictions, we should find that behavioral rewards trigger higher health-goal salience, which then drives healthy food choice for less healthy eaters, but financial discounts heighten a taste goal, which affects unhealthy food choice for healthier eaters. We combined the items for health-goal salience ($\alpha = .74$) and for taste-goal salience ($\alpha = .70$) and ran MANCOVAs to examine the effects. We regressed both health goal and taste goal on incentive, eating habits, and the interaction of incentive and eating habits.

MANCOVA results support our predictions. For salad, we found a significant Incentive × Eating Habit effect on intention to purchase salad, $F(2, 161) = 3.82$, $p < .05$. This significant interaction effect is driven by the influence of Incentive × Eating Habits on health-goal salience, $F(1, 162) = 6.18$, $p < .05$, but not on taste goal ($F < 1$). As expected, the fries condition showed the opposite results where the interaction is driven by the influence of Incentive × Eating Habits on taste-goal salience, $F(1, 139) = 3.03$, $p < .10$, but not on health-goal salience ($F < 1$). Means are depicted in Figure 4a and 4b.

Moderated Mediation Analysis. To assess whether people with less healthy (healthy) eating habits react differently to marketing incentives for healthy (unhealthy) foods because of health (taste) goal salience, we conducted moderated mediation analyses for each food type using the PROCESS

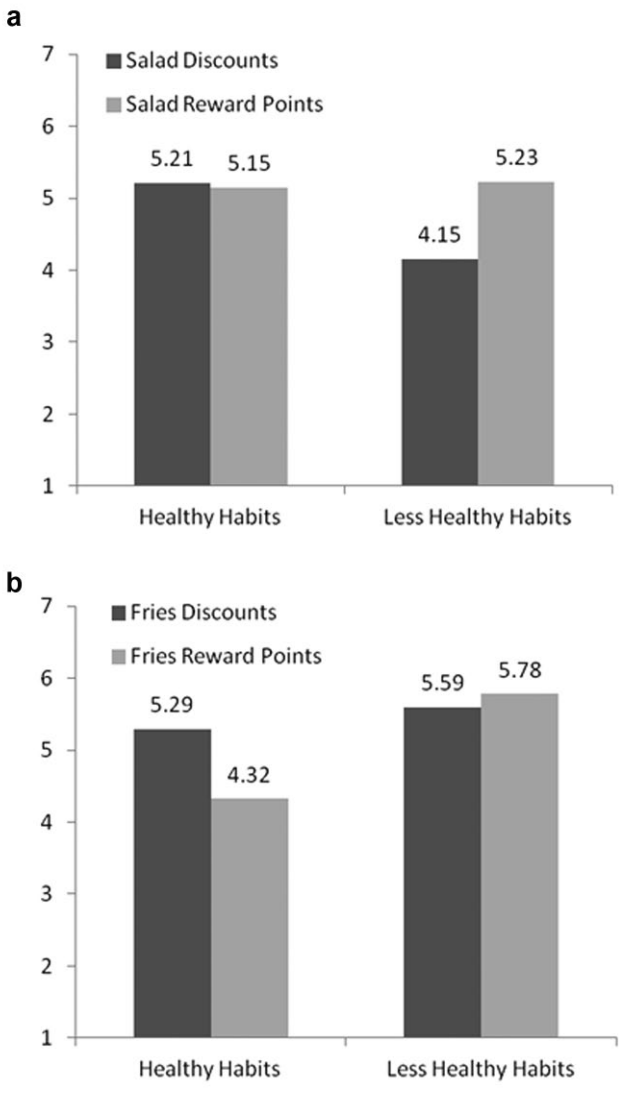

Exhibit 3:

Study 2: People with less healthy eating habits choose salads over fries with behavioral rewards.

Note. (a) Dependent variable: Intention to order salad; (b) Dependent variable: Intention to order fries; 1 = *strongly disagree* and 7 = *strongly agree*.

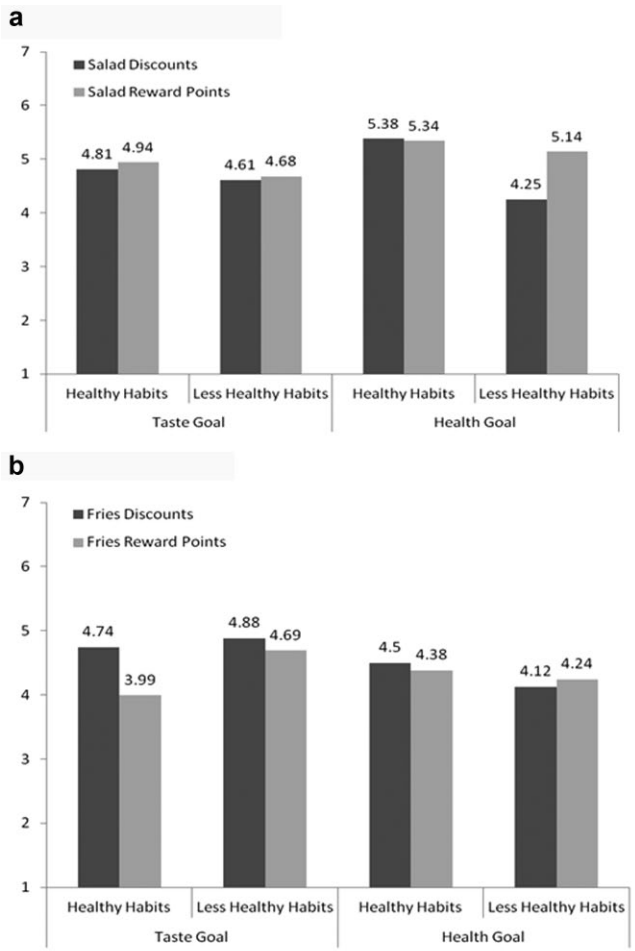

Exhibit 4:

Study 2: Behavioral Rewards Induce Health Goal Among People With Less Healthy Eating Habits.

Note. (a) Incentive for salad; (b) Incentive for fries; 1 = *strongly disagree* and 7 = *strongly agree*.

SPSS macro (Hayes & Preacher, 2013). For each analysis, 1,000 samples were drawn to examine the conditional indirect effects of incentive on intention to purchase food through goal salience.

Results of the analyses for each food condition were consistent with our mediation hypotheses. First, results for the salad condition showed that the indirect incentive effect through health goal on intention to purchase salad for the unhealthy eating habits group was 0.81 with a 95% confidence interval of [0.35, 1.37], which did not include zero. But the same indirect incentive effect for the healthy eating habits group was −0.05 with a 95% confidence interval of [−0.51, 0.31], which included zero. Moreover, the indirect incentive effect on intention to purchase salad through the taste goal were significant for neither eating habits groups (less healthy: 0.09, 95% CI = [−0.16, 0.37]); healthy: 0.07, 95% CI = [−0.24, 0.32]). Because price discount and reward points are dummy coded as 0 and 1, respectively, these findings imply that reward points induced health-goal salience, which in turn increased intention to purchase salad only for people with less healthy eating habits.

Similarly, results for the fries condition showed that the indirect incentive effect through taste goal on intention to purchase fries for the healthy eating habits group was −0.41 with a 95% confidence interval of [−0.83, −.12], which excluded zero. But the same indirect incentive effect for the less healthy eating habits group was −.10 with a 95% confidence interval of [−0.44, 0.09], which included zero. Moreover, the indirect incentive effects on intention to

purchase fries through the health goal were not significant (less healthy: −0.09, 95% CI = [−0.39, 0.19]); healthy: 0.004, 95% CI = [−0.40, 0.35]). These results imply that price discounts induced taste-goal salience which in turn increased intention to purchase fries only for people with healthy eating habits.

Discussion

The most important contribution of Study 2 is that it ruled out the licensing effect as a cause for the finding that behavioral rewards are more effective in inducing healthy food purchase. The scenario used in Study 2 specified that reward points were only redeemable for healthy foods; this restriction, however, produced no change in the incentive effect compared with Study 1. This result confirms that the reason behavioral rewards encouraged healthy food purchase was because of the temporal-goal focus it triggered. Furthermore, results of this study were consistent with our hypotheses concerning reactions to marketing incentives for individuals with healthy and less healthy eating habits.

One way habit is defined in the literature is as a function of how frequently a behavior is performed (Aarts & Dijksterhuis, 2000). Therefore, in Study 2, we used participants' self-report frequencies of salad and fries purchases as proxies for eating habits. This habit measure directly gauges consumption of the foods being promoted, namely, salad and fries. Habitual food behaviors have also been construed at an aggregate level linking a group of individuals to specific eating behaviors. For instance, obesity is linked to consumption of less healthy foods and beverages, as well as large portion sizes (Chandon & Wansink, 2007; Drewnowski & Darmon, 2005). To provide further support that eating habits play a significant role in the incentive effect, in the next two studies, we use a person's BMI as a proxy for eating habits.

Study 3: Do Behavioral Rewards Favor the Overweight Consumer?

To find out whether behavioral rewards favor overweight consumers, we recruited 242 adults in the United States to respond to an online survey. The sample is 53.7% female, with an average age of 38.2 and an average BMI of 25.98.

Method

This Study has a 2 (incentive: reward points vs. financial discounts) × 2 (food: salad vs. fries) × 2 (eating habits: normal weight [healthy] vs. overweight [less healthy]) mixed design. This study used the same scenarios as in Study 2. After reading the scenario, participants responded to the same main dependent measure: "I will order salad" (salad condition) or "I will order fries" (fries condition), the manipulation check question described in Study 2, and demographic questions, including weight and height for BMI calculation. Following established BMI categories (National Institutes of Health), we categorized people in the normal weight BMI range (BMI < 25) as the healthy eating habits group and people in the overweight BMI range (BMI ≥ 25) as the less healthy eating habits group.

Results

For salad, we ran an ANCOVA with incentive, BMI group, and its interaction effect as independent variables; age and gender as covariates; and "I will order a salad" as the dependent variable. Results showed a significant Incentive × BMI Group effect, $F(1, 116) = 4.38$, $p < .05$. As predicted, reward points encouraged salad orders more so than did financial discounts for overweight people. There was no incentive effect for normal weight people. Next, we conducted simple main effects tests to assess the incentive effect across BMI groups. According to our hypothesis, we should observe the incentive effect in the salad condition only for people who are overweight. This is exactly what we found. Specifically, the incentive effect for the overweight group is significant, $F(1, 116) = 6.26$, $p < .05$, but is not for the normal weight group ($F < 1$).

To strengthen results for the hypothesized incentive effect, we should observe the reverse pattern for fries. We repeated the same ANCOVA and found that the Incentive × BMI Group interaction effect was marginally significant: Financial discounts increased intention to get fries more so than behavioral rewards for people who are normal weight, $F(1, 114) = 2.96$, $p < .10$. Simple main effects analysis substantiated that the incentive effect for unhealthy foods was only observed for the normal weight group, $F(1, 114) = 5.73$, $p < .05$, but not the overweight group ($F < 1$). Means are depicted in Figures 5a and 5b.

Discussion

Study 3 confirms that (a) behavioral rewards increase intention to purchase a healthy food only for people who are overweight, and (b) financial discounts increase intention to purchase an unhealthy food only for people who are normal weight. Unlike past research which suggests that people with lower self-control or self-esteem (both of which have been shown to be correlated with BMI; Crescioni et al., 2011; Keller & Siegrist, 2014) rely more on external cues to make food choices (Argo & White, 2012; Wansink & Chandon, 2006), results of this study corroborate with literature which suggests that people tend to rely on external cues whenever they experience goal conflict (Baumeister et al., 1998; Muraven et al., 1998). Subsequently, normal weight and overweight individuals are both affected by external cues especially when the incentivized food is in conflict with their eating habits.

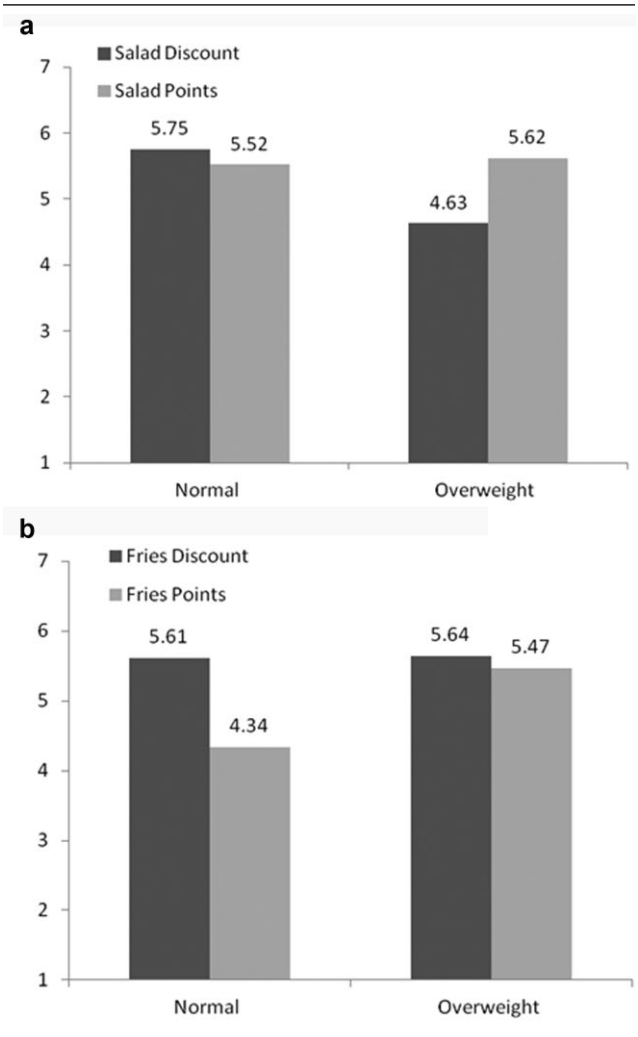

Exhibit 5:
Study 3: Behavioral rewards favored the overweight for healthy food choice.
Note. (a) Dependent variable: Intention to order salad; (b) Dependent variable: Intention to order fries; 1 = *strongly disagree* and 7 = *strongly agree*.

One remaining question that needs to be addressed is whether incentives affect actual food choices. In the field study that follows, we examine the incentive effect at a corporate cafeteria where thousands of food decisions are made on a daily basis. Moreover, we deploy a longitudinal study design to investigate the incentive effect beyond a single food choice. One thing worth noting is that for ethical reasons and health concerns, this field study only examined the proposed incentive effect on healthy foods.

Study 4: Do Behavioral Rewards Lead to Weight Loss?

The objective of Study 4 is to examine whether consumers will actually choose a healthy food option when offered behavioral rewards versus financial discounts. Using a longitudinal design (10 weeks including pre- and post-study observations), a weight-loss measure, and target-food sales (i.e., regular salad at the salad bar and vegetable side dish at the hot entrée station), we were able to look at the incentive effect over time.

Method

This study was conducted at a corporate cafeteria of a medium-sized corporation in upstate New York. Participants were employees who patronize the company's in-house cafeteria during lunch hours. We selected the regular salad at the salad bar and the vegetable side dish at the hot entrée station as two target foods. At the salad bar, either a price discount or reward points was offered for the purchase of a regular salad. At the hot entrée station, either a price discount or reward points was given for the choice of a vegetable rather than a starch side dish. This cafeteria only offered one hot entrée per day, but patrons had the option to choose between a vegetable and a starch side dish that costs an extra US$1.00.

Incentives were operationalized as a price-discount incentive (50 cents off a US$2.75 regular salad or 25 cents off a US$1.00 vegetable side dish) and a reward-points incentive (50 points for each regular salad or 25 points for each vegetable side dish purchased). Reward points were given on a punch card and rewards were as follows: collect 250 points at the salad bar (i.e., five salads) to get US$2.50 off the next purchase at the cafeteria or collect 100 points at the hot entrée station (i.e., four vegetable side dishes) to get a free side dish that was worth US$1.00. The incentive interventions for each target food were implemented in reverse order such that the price-discount intervention was followed by the reward-points intervention for salad and the reward-points intervention was followed by the price-discount intervention for the side dish. Each intervention lasted for 3 weeks and there was no break in between interventions.

	Salad Bar	Vegetable Side Dish
Intervention 1 (First 3 weeks of study)	50 cents off (US$2.75; each regular salad purchased)	25 points (Each vegetable side dish purchased)
Intervention 2 (Second 3 weeks of study)	50 points (each regular salad purchased)	25 cents off (US$1.00; each vegetable side dish purchased)

Data Collection

The company recruited employees through its internal email system to complete our online post-study survey. The questionnaire was opened a week after the second intervention

and remained accessible for 3 weeks. Participants who gave their email addresses after completing the survey were entered into a lottery for an iPad. We used a filter question to identify employees who purchased lunch at least once at the cafeteria during the study period, yielding a sample of 243. We then asked them to indicate which of the four patron categories they belonged to during the 6 weeks of intervention: (a) received neither price discounts nor reward points, (b) received price discounts only, (c) received reward points only, or (d) received both price discounts and reward points. We focused our analysis on people who received price discounts only (n = 49) or reward points only (n = 78). Participants in these two groups comprised a final sample of 127 (68.5% female; average age = 43, 83.5% Caucasian).

Other measures included in the analysis were BMI ("How much did you weigh in the beginning of February?"; "How tall are you?") and weight loss ("What is your current weight?"; "How much weight did you lose during the past 6 weeks?"). We also asked participants "What is the maximum amount of weight that you have ever lost within one month?"

Results

Weight loss. To assess the incentive effect on weight loss, we ran a multiple regression to determine whether the relationship between one's BMI and weight loss was contingent on incentive, dummy coded as 0 = price discount and 1 = reward points. BMI was calculated using original weight and height (Median = 25.68). Age, gender, and the maximum amount of weight the individual has ever lost within 1 month were included as covariates to account for individual differences. Amount of weight loss was the dependent variable.

We ran regressions with and without the covariates. Both regressions revealed a significant Incentive × BMI interaction effect (Table 1). We discuss results with the covariates to provide a more conservative test of our hypothesis. The regression yielded a marginal main effect of reward points, $\beta_{points} = -.73$, $t(99) = -1.78$, $p < .10$. This main effect is qualified by a significant Incentive × BMI interaction, $\beta = .96$, $t(99) = 2.39$, $p < .05$.

To gain more insight into the nature of the Incentive × BMI interaction effect on weight loss, we conducted a moderated multiple regression analysis following Irwin and McClelland's (2001) suggestion for regression with one continuous (BMI) and one dichotomous (type of incentive) variable. Specifically, we regressed weight loss on BMI at each of the two types of incentives. We repeated the analyses with and without the covariates; results are reported in Table 2. To be consistent, we discuss results with covariates. As expected, we found that for participants who received reward points, BMI is positively related to weight loss, $\beta = 0.49$, $t(61) = 4.5$, $p < .05$. This result can be interpreted as evidence that people with higher BMI lost more weight with reward points. This is not the case for the price-discount incentive where BMI is not related to weight loss, $\beta = 0.21$, $t(35) = 1.31$, $p > .10$.

We repeated the analyses by dichotomizing BMI into the normal weight group (BMI < 25) and overweight group (BMI ≥ 25). Results are presented in Table 3. Similarly, the incentive effect was only observed for people who are overweight such that behavioral rewards led to more weight loss among this group, $\beta = 0.26$, $t(54) = 4.5$, $p < .05$; however, no incentive effect was observed for normal weight people, $\beta = 0.10$, $t(42) = 0.68$, $p > .10$.

Next, we obtained sales data for the salad bar and side dishes at the cafeteria during the 10 weeks of our study. Specifically, 2 weeks each of pre- and post-study, baseline sales were obtained for comparison with sales during the 6-week intervention. The sales data contained the daily number of regular salads sold and the daily number of vegetable and starch side dishes sold. If the incentive effect is as hypothesized, we should observe higher salad sales and vegetable side dish sales during the reward-points intervention.

Regular salad sales. The number of salads sold was recorded 5 days a week for four time periods: pre-study, price-discount intervention, reward-points intervention, and post-study. A one-way ANOVA was conducted to assess the main effect of incentive on number of salads sold. As expected, there is a significant incentive effect ($M_{pre\text{-}study}$ = 36.1 vs. M_{price} = 38.1 vs. M_{points} = 46.4 vs. $M_{post\text{-}study}$ = 40.22), $F(3, 45) = 4.37$, $p < .05$. We expect that salad sales during the reward-points intervention should be higher than the other three periods. A planned contrast revealed exactly that salad sales during the reward-points intervention were significantly higher than those during the pre-study, price-discount, and post-study periods ($p < .05$). A second planned contrast also showed that salad sales during the reward-points intervention were significantly higher than during the price-discount intervention ($p < .05$).

Vegetable side dish sales. The number of vegetable and starch side dishes sold was recorded for the same four time periods. The sales measure for this item was converted to a proportion of vegetable side dish to total side dish ordered. We used this ratio because we are interested in the change (increase) of vegetable sides relative to total sales, but not the absolute change. A one-way ANOVA revealed a significant incentive effect ($M_{pre\text{-}study}$ = 0.44 vs. M_{points} = 0.41 vs. M_{price} = 0.36 vs. $M_{post\text{-}study}$ = 0.34), $F(3, 35) = 3.62$, $p < .05$. The mean proportion of vegetable sides sold between the reward-points intervention and the price-discount intervention are significantly different ($p < .05$). The mean proportion of vegetable sides

Exhibit 1:

Study 4: Cafeteria Reward Programs Led to More Weight Loss for Overweight Diners.

Predictor	Model With Covariates		Model Without Covariates	
	Standardized Coefficient (*SE*)	*t* Statistic (*p* Value)	Standardized Coefficient (*SE*)	*t* Statistic (*p* Value)
Independent variables				
Incentive	−0.79	−1.93*	−0.73	−1.78*
(0 = *discount*; 1 = *points*)	(3.02)	(.06)	(3.02)	(.08)
BMI	0.16	1.16	0.15	1.13
	(0.08)	(.25)	(0.08)	(.26)
Incentive × BMI	1.01	2.53**	0.96	2.39**
	(0.11)	(.01)	(0.11)	(.02)
Covariates				
Age	−0.15	−1.61	—	—
	(0.03)	(.11)		
Gender	0.03	0.36	—	—
	(0.70)	(.72)		
Maximum weight loss in a month	0.12	1.33	—	—
	(1.33)	(.19)		

Note. Reward points and gender are dummy coded such that 0 = *discount* and 1 = *reward points* and 0 = *male* and 1 = *female*, respectively. Negative incentive effect is qualified by the Incentive × BMI interaction effects such that reward points led to more weight loss for the overweight participants ONLY. BMI = body mass index.
*$p < .10$. **$p < .05$.

Exhibit 2:

Study 4: BMI Predicts Weight Loss Only When Given Reward Points.

Predictor	Standardized Coefficient (*SE*)	*t* Statistic (*p* Value)	Standardized Coefficient (*SE*)	*t* Statistic (*p* Value)
Reward points (*n* = 66)				
Independent variable				
BMI	0.53	4.32**	0.49	4.50**
	(0.09)	(.00)	(0.08)	(.00)
Covariates				
Age	−0.15	−1.19	—	—
	(0.04)	(.24)		
Gender	0.04	0.31	—	—
	(1.06)	(.76)		
Maximum weight loss in a month	0.06	0.46	—	—
	(0.52)	(.65)		
Price discount (*n* = 40)				
Independent variable				
BMI	0.17	1.02	0.21	1.31
	(0.07)	(.32)	(0.07)	(.20)
Covariates				
Age	−0.25	−1.53	—	—
	(0.04)	(.13)		
Gender	−0.02	−0.13	—	—
	(0.90)	(.90)		
Maximum weight loss in a month	0.32	1.97	—	—
	(0.55)	(.06)*		

Note. BMI = body mass index.
*$p < .10$. **$p < .05$.

Exhibit 3:
Study 4: Reward Points Have Larger Impact on Overweight Diners.

Predictor	Standardized Coefficient (*SE*)	*t* Statistic (*p* Value)	Standardized Coefficient (*SE*)	*t* Statistic (*p* Value)
Overweight/obese BMI diners (BMI ≥ 25; *n* = 59)				
Independent variable				
Incentive	0.23	1.73*	0.26	1.95*
(0 = *discount*; 1 = *points*)	(1.10)	(.09)	(1.08)	(.06)
Covariates				
Age	−0.10	−0.72	—	—
	(0.05)	(.47)		
Gender	0.19	1.37	—	—
	(1.12)	(.18)		
Maximum weight loss	0.29	2.12**	—	—
in a month	(0.61)	(.04)		
Normal BMI diners (BMI < 25; *n* = 47)				
Independent variable				
Incentive	0.09	0.61	0.10	0.68
(0 = *price*; 1 = *points*)	(0.67)	(.55)	(0.70)	(.49)
Covariates				
Age	−0.26	−1.76*	—	—
	(0.03)	(.09)		
Gender	−0.14	−0.94	—	—
	(0.87)	(.36)		
Maximum weight loss	−0.16	−0.16	—	—
in a month	(0.36)	(.87)		

Note. BMI = body mass index.
*$p < .10$. **$p < .05$.

sold between the reward-points intervention and the post-study periods are marginally different ($p < .10$) but that between price and post-study periods are not statistically different ($p > .10$).

The pre-study mean proportion of vegetable sides sold was unexpectedly high. We attribute this finding to the miscategorization of variations of potato side dishes (except for fries and mashed potatoes) as a vegetable rather than a starch during the pre-study period. Consequently, patrons actually chose between two starch sides rather than one vegetable and one starch during the pre-study period. This was corrected before Intervention 1 was implemented; therefore, the post-study baseline is a more appropriate comparison.

Discussion

Results of this field study shows the significance of the incentive effect in a real-world environment where people make food decisions on a daily basis. First, the proposed incentive effect was observed on two important dependent variables: weight loss and sales of healthy food. We substantiate our claim that behavioral rewards are more effective for encouraging healthy food choice by showing that reward points lead to more healthy choices and weight loss than do purchase discounts. Moreover, for both target healthy foods, sales were significantly higher during the reward-points intervention than the price intervention. Because the two incentives were administered in reverse order for each food, the possibility of an order effect is ruled out.

More importantly, this study provides direct evidence that consumers with higher BMI who most need to regulate poor diet habits benefit the most from a behavioral rewards program. Overall, reward points generated more healthy food sales than did price discounts: reward points generated a 28.5% increase in salad sales compared with a 5.5% increase with price discounts; reward points raised vegetable side dish sales by 7% compared with a 2% increase with price discounts. In terms of weight loss, reward points induced 0.38 pounds of weight loss with every unit increase in BMI compared with the 0.08 pounds generated by price discounts. Furthermore, when comparing only people who are overweight (BMI ≥ 25), reward points resulted in almost 2 pounds more weight loss during the study period than did price discounts.

General Discussion

Governments and the food industry have tried to change consumers' eating habits mainly with three approaches: by

providing relevant information to guide better decisions (e.g., United States Department of Agriculture MyPlate and caloric information on menus), by making healthier foods more readily available (e.g., salads and reduced calories meals at fast food restaurants), and by attaching disincentives to unhealthy foods (e.g., taxation on junk foods and soft drinks). Yet, research examining the effectiveness of these approaches has shown either no impact on behavior or contrasting effects.

Studies exploring whether taxing soft drinks and snacks is effective generally show that taxes have minimal, if any, desirable effects (Fletcher, Frisvold, & Tefft, 2010a, 2010b; Kuchler, Tegene, & Harris, 2005). For instance, research indicates that a soft drink tax at 58% is needed to decrease adult BMI in the United States by only 0.16 units compared with the 2.3 units typically gained in a year (Fletcher et al., 2010b). Likewise, a 20% tax on salty snacks such as chips is predicted to reduce consumption by 5.54 ounces per person per year—or just 830 calories, equal to ¼ of a pound (Kuchler et al., 2005).

Even more frustrating, informational interventions designed for people who most need to change their eating habits have largely been ineffective. For example, food-product and menu-health claims can lead to "health halos," calorie underestimation, and overconsumption (Chandon & Wansink, 2007). Low-fat labels often increase serving size and consumption quantity (Wansink & Chandon, 2006). Merely considering a healthy option on a menu can fulfill one's health goal and provide license to choose an unhealthy food (Wilcox, Vallen, Block, & Fitzsimons, 2009). Healthy and unhealthy foods offered in combination induce an averaging bias and decrease overall caloric estimates (Chernev & Gal, 2010), especially among dieters (Chernev, 2011). Small package sizes lead people with low self-control to consume more quantity and calories (Argo & White, 2012; Scott, Nowlis, Mandel, & Morales, 2008). In sum, efforts and money spent by governments and food companies on health awareness and promotion measures seem to be of little to no avail.

In view of these shortcomings, one goal of this research was to find a direct, simple, and effective intervention to encourage healthy eating, especially for people with less healthy eating habits as reflected by indulgent food consumption behaviors and high BMIs. Together, the results of our four studies show that different types of incentives have different effects on healthy food choices. Specifically, we proposed and found empirical support that an incentive eliciting a distal temporal focus (e.g., behavioral rewards) motivates consumers to make healthier food choices. The robustness of this incentive effect is confirmed in a combination of lab and field studies. The selection of incentives, namely, price discounts or reward points, are both typical marketing promotions used by the food industry as well as widely studied in the marketing literature (Henderson et al., 2011). Our research shows that these common marketing promotions can be redirected to encourage healthier consumer behavior.

We find that the positive effect of different incentives hold in both lab and real-world settings where food choices resemble the variety of dishes offered on the menu of a typical fast food or quick-service restaurant. As shown in our field study, behavioral rewards increased salad sales by as much as 28.5% compared with the 5.5% with price discounts. Interestingly, the incentive effect is stronger for people who are more likely to have less healthy eating habits, such as a lack of self-control over food decisions or to indulge in less healthy foods, thereby yielding BMIs above the normal range. In particular, overweight diners in our field study lost almost 2 pounds more weight with behavioral rewards than with financial discounts.

Theoretical Implications

This research draws from three literatures—marketing incentives, temporal goals, and habitual behaviors—to formulate our main proposition regarding the incentive effect. Research on incentives offered insight into how reward values, and effort can induce choice and identified underlying mechanisms such as value discounting and differential weighting of effort across time (Frederick, Loewenstein, & O'Donoghue, 2002; Hoch & Loewenstein, 1991; Kirby & Herrnstein, 1995; O'Donoghue & Rabin, 1999; Soman, 1998). The literature on intertemporal choice suggested that people's choices differ across time (Laran, 2010; Milkman et al., 2010; Read et al., 1999; Read & van Leeuwen, 1998) and that temporal focus heightens attention to different concerns (Fujita et al., 2006; Trope & Fishbach, 2000). We proposed and found that the innate payout structures of financial discounts and behavioral rewards draw attention to proximal and distal time horizons and yield choices that reflect the temporal focus salient at the time. However, a boundary condition to this effect that we identify is product type; that is, healthy versus unhealthy foods.

This is also the first study to examine how eating habits systematically affect goal-directed behaviors. Drawing on literature grounded in a cognitive–motivational view of habits (Aarts & Dijksterhuis, 2000; Chartrand et al., 2007), we posited that good and bad eating habits are represented by distinct and sometimes conflicting goals: health and indulgence, respectively, which in turn elicit healthy and unhealthy eating behaviors. This notion is evident in the self-control literature, which shows that when consumers who lack self-control are prompted by a tempting food, they respond less quickly in latency tests to health-related concepts (e.g., diet) than do consumers who possess greater self-control (Fishbach et al., 2003). Because habits are formed by consistent co-activation of concepts and behaviors that eventually become automatic goal pursuits, habits are likely

a result of the continued effort of practicing self-control (good habits) or yielding to temptation (bad habits). Research indicates that habits play an important role in food consumption (Khare & Inman, 2006). The current study extends previous research by examining the underlying, goal-based mechanism for how habits actually influence behaviors.

Finally, this research also reconciled past research that generally finds economic rewards to be ineffective in encouraging healthy behaviors. Past research suggests that punishments, but not rewards, are effective in inducing healthy behaviors that eventually lead to weight loss (Fowler, Follick, Abrams, & Rickard-Figueroa, 1985; Jeffery, Bjornson-Benson, Rosenthal, Kurth, & Dunn, 1984; Jeffery et al., 1993). Results of this research, however, show how rewards can be designed to produce desired outcomes. We proposed and found that rewards can be effective, as long as the rewards prime a longer temporal frame that activates health concepts and thereby facilitates healthy food choices.

Implications for Consumers, Managers, Governments, and Policy Makers

Implications for consumers. Eating healthy is a habit, not an isolated incident. Moreover, the benefit one obtains from eating healthy is not usually perceivable until after a long period of time. This research shows how fast food restaurants may encourage repeat purchases using behavioral rewards without compromising the health of customers. For consumers, such behavioral rewards programs might introduce more variety and choices, especially healthy choices. More importantly, consumers can be rewarded for eating better. The points received for each healthy choice not only lead to a reward (e.g., accumulated cash value or free food), but also signify the otherwise intangible benefits of an isolated act of eating healthy. This type of long-term promotional offer enables individuals to make tangible their progress toward a healthy goal, which motivates the behavior, as well as generates positive affect associated with the self (Carver & Scheier, 1990).

Implications for managers and food service. Critics of the fast food industry (De Vogli, Kouvonen, & Gimeno, 2011) argue that these restaurants should be blamed for creating unhealthy, overweight populations. Note, too, the vividness of movies such as *Supersize Me* and *Fast Food Nation*. Fast food restaurants, however, argue that they cannot be held responsible when food choice rests in the hands of customers (Dunne, 2004). While this debate about who is right or wrong continues, a more constructive action is to resolve the healthy-loyalty dilemma. Can fast food restaurants keep customers coming back and keep them healthy? Our research suggests that the answer is "Yes."

For food service managers and firms, running a healthy eating program helps build a better brand at a lower cost (Wansink, 2014). Fast food restaurants spend considerable resources on marketing. For instance, McDonald's reportedly spent US$963 million on measured media in the United States alone in 2011 ("McDonald's Launches Marketing for 'Favorites Under 400 Calories' Platform," 2012), though less than 10% of marketing spending is on healthy menu options (Harris, Schwartz, & Brownell, 2010). Unfortunately, these costly efforts seem to have little effect. Promoting healthy options on the menu does not necessarily translate to people buying them (Wansink & Just, 2013; Wansink, Painter, & van Ittersum, 2001). Indeed, marketing researchers and practitioners have long recognized that attention and action are two separate steps in the marketing process (Attention-Interest-Desire-Action; Coolsen, 1947). When the awareness of healthy food offers is high among patrons, the next step is to incentivize the choice to generate action. As the current studies indicate, incentivizing with behavioral rewards is more effective for consumers who are either overweight or junk-food junkies. The use of reward points offers food service providers, from company cafeterias to fast food restaurants and perhaps even upscale eateries, a profitable win-win way to help patrons become slim by design.

Implications for governments and policy makers. Attempts by governments and policy makers to improve public health are often unwelcome by the food industry. Understandably, taxation on unhealthy foods and policies like the soft drink size limit or constraints on fast food or junk-food advertising have direct, undesirable impacts on businesses and hinder business autonomy. However, the prevalence of obesity, not only in the United States but globally, deems governmental involvement necessary. The findings of the current study provide a solution for governments and policy makers, who may simply encourage the implementation of behavioral rewards programs for healthy foods at fast food and other restaurants. Policies or regulations to encourage behavioral rewards programs are unlikely to stimulate negative reactions from food companies because such programs help promote the healthy food items already on their menus and encourage repeat customers.

Limitations and Future Research

In our studies, we included objective measures to test the incentive effect across individual differences with the goal of identifying possible solutions for consumers who most need to make healthy food choices. Future studies might examine whether or not contextual factors such as the design of reward programs can induce the same effects. One way to extend the current research is to manipulate motivation by altering progress in the reward program. For example, researchers might manipulate the number of points promised even before the first purchase. In line with goal

gradient theory (Hull, 1934; Kivetz, Urminsky, & Zheng, 2006), as one gets closer to the goal, motivation to achieve the goal also increases. Accordingly, people may be more motivated to participate in a good health reward program if they perceive progress. Similarly, research has found that consumers are motivated to purchase more frequently with increasing proximity to the goal or reward (Nunes & Dreze, 2006). Proximity to the goal or reward can be manipulated by the number of purchases needed to get a reward. This would further test the effectiveness of incentives that are future-oriented.

We collected data about the number of healthy food purchases made by each participant with a self-report measure in a field study. Due to missing data, we were unable to perform individual-level analysis. We show at an aggregate level that consumers who received reward points purchased more healthy foods and lost more weight. The increased sales and weight loss, however, cannot be linked directly to the individual due to the missing information about individual food purchases. Future studies may explore this link by deploying methods such as experience sampling or obtaining data from companies such as Weight Watchers. The strength of these methods and data is that they will not only provide more complete purchase and weight records, but they will also track changes in other behaviors of interest.

Common wisdom and experts both state that weight loss and good health in general cannot be achieved without combining a healthy diet with regular exercise. Yet, consumer research consistently shows that due to goal regulation (Chartrand, Huber, Shiv, & Tanner, 2008; Laran & Janiszewski, 2009) or licensing effects (Khan & Dhar, 2006) people tend to compensate for good behavior with indulgence. Still other research suggests that the very act of resisting temptations depletes mental resources, which causes one to digress more easily (Baumeister et al., 1998; Shiv & Fedorikhin, 1999). What, if any, is the role of incentives on sequential health-related decisions? Do behavioral rewards reduce the likelihood of digression because incentives serve as heuristics that do not exhaust mental resources? Future studies may capture the different facets of daily life such as time spent exercising to help uncover the potential influences of incentives on encouraging a healthier lifestyle.

Conclusion

Solutions to improve people's food choices, like taxes or regulation, are often impractical for businesses and ineffective for consumers. This research is a breakthrough in that it provides a simple, concrete solution to increase healthy food consumption. We report encouraging and robust results to suggest that behavioral rewards lead to healthy food choice and weight loss. Such reward programs can be easily adopted by a wide range of food outlets from cafeterias in schools to fast food restaurants. Governments can encourage the implementation of behavioral rewards programs through public policy (Wansink, 2012; Wansink & van Ittersum, 2012). As for consumers, especially people who are overweight or have an unhealthy eating habit, behavioral rewards can incentivize them to eat healthy and keep going back for more.

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