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Activating health goals reduces (increases) hedonic evaluation of food brands for people who harbor highly positive (negative) affect toward them

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Research report

Activating health goals reduces (increases) hedonic evaluation of food brands for people who harbor highly positive (negative) affect toward them ☆

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ABSTRACT

Associations of pleasure and fun with junk foods have the potential to create considerable challenges for efforts to improve diets. The aim of this research was to determine whether activating health goals had the potential to exploit mixed motivations (i.e., health and pleasure) that people have related to food, and subsequently strip junk foods of the expected pleasure derived from them. In study 1, 98 participants evaluated a soft drink brand after being primed (not primed) for health. In study 2, 93 participants evaluated a presweetened breakfast cereal brand after being primed (not primed) for health. In both studies, participants who harbored highly positive feelings for the food brands devalued their hedonic judgments of them when they were primed for health. However, in an unexpected result, participants in both studies who harbored highly negative feelings for the food brands revalued their hedonic judgments of them (i.e., increased the favorability) when they were primed for health. Thus, increasing health salience is only effective in decreasing expected pleasure derived from junk foods for people who harbor positive affect toward junk food brands, and is likely counterproductive for people who harbor negative affect toward junk food brands.

Introduction

Rates of obesity and overweight continue to climb despite a plentitude of studies documenting their prevalence and their associated implications on public health. Many researchers place at least some blame on a "toxic environment" where foods and drinks high in sugar and/or fat and low in nutrients are inexpensive and ubiquitous (Wadden, Brownell, & Foster, 2002). Indeed, snack foods, soft drinks, candy, and fast food represent an industry with worldwide sales in excess of $1 trillion (Allday, 2012; Connell, 2012; Sivasailam, 2012). In this research, we investigate the potential of health goal activation on stripping unhealthy foods of some of their appeal. Specifically, we provide evidence that priming health in subtle ways leads to less favorable hedonic judgments of junk food brands among those who harbor strongly positive affect toward them. However, in an unexpected effect, we also find that priming health also leads to more favorable hedonic judgments of junk food brands among those who harbor strongly negative affect toward them. We begin our paper by examining literatures on affect toward brands, attitude ambivalence, and conflicting motivations. We then present the results of two experimental studies and discuss the implications of our research.

Affect toward food brands

Junk foods are frequently associated with pleasure, such as fun and a pleasant taste. Thus, it is not surprising that people who harbor highly positive feelings toward junk food brands would rate them in an affect-congruent direction as more pleasurable and fun (Forgas, 1995; Mayer, Gaschke, Braverman, & Evans, 1992). These associations of pleasure and fun have the potential to create considerable challenges for efforts to improve the diets of people who strongly like these brands.

Repeated exposure to a brand via advertising, product placements, and packaging cues can lead to increased liking of the brand (Zajonc, 1968). Previous research has indicated that when people trust brands and display positive affect toward brands, both an

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attitudinal loyalty and behavioral loyalty (in the form of purchases and consumption) to these brands results (Chaudhuri & Holbrook, 2001). Indeed, people often have relationships with brands that are parasocial in nature and can resemble relationships with other people (Fournier, 1998). Furthermore, the resulting commitment to these brands can lead people to forgive transgressions and even defend these brands when they are exposed to negative information about them (Ahluwalia, Burnkrant, & Unnava, 2000). Thus, attempts to change beliefs toward beloved junk food brands become problematic from traditional information-processing perspectives. We suggest that more subtle environmental cues might be more effective by exploiting attitude ambivalence about these brands.

Ambivalent attitudes and food brands

People often have attitudes that are ambivalent; that is, they possess positive attitudes on some dimensions and negative attitudes on other dimensions of the object of the attitude (Thompson, Zanna, & Griffin, 1995). In the domain of food, people often have a lay intuition that foods that taste good are also unhealthy (Raghunathan, Naylor, & Hoyer, 2006). Attitude ambivalence about unhealthy foods has been demonstrated to attenuate the link between favorable attitudes toward the hedonic pleasure derived from foods and the intention to consume these foods (Conner, Povey, Sparks, James, & Shepherd, 2003; Sparks, Conner, James, Shepherd, & Povey, 2001). However, the bulk of this research was conducted in the domain of categories of food products (e.g., junk foods versus healthy foods) rather than food brands, and defined the hedonic pleasure associated with food with how the foods taste. We believe it is important to consider the role of food brands because (1) brands create preferences that vanish when the products are stripped of their branding labels (Allison & Uhl, 1964; Makens, 1965; McClure et al., 2004; Nevid, 1981), (2) people develop strong connections to brands and that can result in more resilient attitudes than those toward foods themselves (e.g., Coca-Cola versus soft drinks in general) (Ahluwalia et al., 2000; Fournier, 1998; Lisjak, Lee, & Gardner, 2012), and (3) brand associations for foods can carry hedonic associations that go beyond the product's palatability (e.g., fun, happiness, prestige).

Previous research has shown that restrained eaters in particular have ambivalent attitudes about food and have strong evaluations of the negative aspects of foods that deliver hedonic pleasure (Papies, Stroebe, & Aarts, 2007, 2009). We believe these findings about restrained eaters can be extended to the general public by examining theories of motivational conflict. That is, restrained eaters have a persistent goal to regulate their weight that conflicts with satiation and hedonic goals related to food (Herman & Mack, 1975; Polivy & Herman, 1983). Similarly, among the general public, health is a persistent and important goal that would also conflict with hedonic goals related to food. Thus, activating health goals is likely to make the more negative aspects of unhealthy foods more accessible and the more rewarding aspects of them less accessible.

Conflicting motivations involving food brands

Previous research has shown that activating a goal can result in devaluation of unrelated objects (Brendl, Markman, & Messner, 2003; Markman, Brendl, & Kim, 2007). Fishbach and Ferguson (2007) suggest that this occurs because people have many goals, but have limited resources to pursue them. Thus, when one goal is activated, the accessibility of other goals is often inhibited (Ferguson & Bargh, 2004; Ouwehand & Papies, 2010; Shah, Friedman, & Kruglanski, 2002). In the case of junk food brands, we believe that activating health goals will make hedonic goals less salient. In addition, when objects of evaluation have the potential to actually thwart an active goal, then previous research has found that tempting options become less accessible (Fishbach & Ferguson, 2007; Fishbach, Friedman, & Kruglanski, 2003) and the positive valence associated with them is attenuated (Fishbach & Ferguson, 2007; Fishbach, Zhang, & Trope, 2010). For example, Fishbach et al. (2010) found that dieters gave negative evaluations of tasty but fattening food and college students devalued leisure time when ongoing academic goals were made salient. Their findings suggest that the competing goal must be active and unfulfilled for this devaluation to occur, and that people appear to be unaware of the adjustments they make in their judgments that help facilitate success of goal fulfillment (Fishbach et al., 2010).

Previous research has demonstrated that goals can be activated and lead to behavioral changes through subtle techniques such as priming (Bargh & Chartrand, 2000; Ferguson, Hassin, & Bargh, 2008). Field studies have supported the assertion that behavioral cues can serve as real-world primes that affect eating behavior (Painter, Wansink, & Hieggelke, 2002; Scheibehenne, Todd, & Wansink, 2010; Shimizu & Wansink, 2011; Wansink, Payne, & Shimizu, 2010). For example, snack food advertisements have been shown to lead people to overeat (Harris, Bargh, & Brownell, 2009). On the other hand, Papies and Hamstra (2010) found that placing a sign in a retail environment that referred to maintaining a slim figure helped people avoid tempting options. Thus, the predominating goal tends to dictate how people will evaluate options and choose among them.

The current research

We believe that, consistent with work by Ferguson and Bargh (2004), activating a goal will simultaneously make information relating to goal fulfillment more accessible and information relating to impedance of goals less accessible. In the context of food brands, when health goals are activated, junk foods are not useful to this goal. At the same time, however, strong positive affect toward these brands will cause people to resist changing their judgments on domains related to negative information (e.g., lowered likelihood to change judgments on the healthiness of a junk food brand when health goals are made salient) (Ahluwalia et al., 2000; Lisjak et al., 2012). People can then fulfill their health goals instead by devaluing the hedonic pleasure associated with the junk food brand because it is not useful in reaching the health goal but is not related to negative information about the food brand that becomes accessible when health goals are primed. Therefore, we predict that activating a health goal through priming (Bargh, Bond, Lombardi, & Tota, 1986; Bargh & Pietromonaco, 1982) could decrease the value of a specific set of attributes that are unrelated to the goal of health (i.e., hedonic pleasure) among people who harbor strongly positive affect toward junk food brands. However, because individuals who display neutral or negative affect toward these brands are less likely to exhibit such strong goal conflict to begin with, then this devaluation effect is not likely to occur when affect toward the brand is not highly positive.

Across two experimental studies, we find that making health salient by priming can result in judgments of fun and tastiness that are less favorable for people who harbor highly positive feelings toward junk food brands. We first provide the results of two pretests. The first pre-test demonstrates that the manipulation used in the experimental studies (primed health) indeed activates a health goal. The second pre-test provides evidence that the manipulation used in the experimental studies does not alter reported affect. We then provide the results of the two focal studies and conclude with a discussion of the theoretical and practical implications of our findings.

Method

Pre-test 1

The purpose of the pre-test was to confirm that the health prime manipulation used in studies 1 and 2 indeed increases health motivation. After giving consent to participate, 47 undergraduate students (47.8% male) were randomly assigned to one of two conditions: a health prime or a neutral prime. Participants in the health prime condition were given a priming task that followed a format previously used by Bargh, Gollwitzer, Lee-Chai, Barndollar, and Trötschel (2001). In the task, participants searched for words on a list in a word search puzzle. The puzzle was designed by an online puzzle generator, and was designed to be difficult (that is, with words arranged diagonally and/or backwards and intersecting each other with high frequency) so that participants would be focused on the task of searching for the words rather than what the words were or what they meant; most participants were able to complete the puzzle within 20 min. Health prime participants searched for seven words related to health (energetic, exercise, fitness, healthy, nutritious, strong, thin) interspersed among six neutral words (green, lamp, plant, robin, staple, turtle). Participants in the neutral prime condition searched for seven neutral words (alligator, gasoline, magazine, mountain, picture, ranch, shampoo) in addition to the six previously mentioned neutral words, for a total of 13 neutral words. After completing the puzzle, participants then selected from two different options in an ostensibly unrelated taste test study where they could choose to sample "a new variety" of fruit or "a new product" of candy. Participants were then probed for suspicion in a funnel debrief including the following open-ended questions: "What do you think was the purpose of the study? What was it trying to study?", "Did you think any of the tasks you did were related in any way? If yes, in what way were they related?", "Did anything you did on one task affect what you did on any other task? If yes, how do you think it affected you?", and "Did you think the taste test could have been related to any other task? If yes, in what way were they related?" (Bargh & Chartrand, 2000). None of the participants expressed suspicion as to the connection between the prime and the choice task. Participants were then thanked for their participation, and excused.

Results from a chi-square test supported the prediction that participants in the health prime condition would choose fruit over candy at a higher rate than in the neutral prime condition ($\chi^2(1) = 3.49$, $p = .06$). In the neutral prime condition, participants chose between the options at approximately equal rates (45.5% candy, 54.5% fruit), whereas in the health prime condition participants were more likely to choose fruit, the healthier of the two options (20.0% candy, 80.0% fruit). These results suggest that the health prime indeed increases health-related motives and thus the prime was used in studies 1 and 2.

Pre-test 2

The purpose of this pre-test was to rule out the possibility that the health prime decreases reported affect. In the context of our research, it is important that the product stimulus is shown after the prime to avoid formation of judgments before priming because previous studies have showed strong evidence that evaluations of objects are made automatically and immediately, regardless of whether one has intent on making such evaluations (Fazio, Sanbonmatsu, Powell, & Kardes, 1986; Ferguson & Bargh, 2004; Ferguson, Bargh, & Nayak, 2005). Because affect toward the stimulus cannot be measured without showing the stimulus, it is important to determine that the priming exercise does not have an effect on reported affect (e.g., that priming health does not reduce affect toward the brand).

After giving consent, 67 participants provided an initial report of the positive (or negative) affect they felt toward a popular cereal brand, Kellogg's Frosted Flakes, on a feeling thermometer, whereby participants were asked to imagine their feelings for the image they saw as if they were being measured with a graphical representation of a thermometer (0 = very cold feelings, 50 = neutral feelings, 100 = very warm feelings) ($M = 71.24$, $SD = 16.28$). This measure was taken via the internet among a series of other questionnaires that were irrelevant to this study and were taken when participants signed up to participate in a lab study. A minimum of seven days later, participants entered a research lab and completed the priming exercise described in pre-test 1. After completing the priming exercise, participants re-reported their affect toward the same stimulus using the same feeling thermometer measurement. Participants then completed an unrelated study before being probed for suspicion using the funnel debrief described in pre-test 1, and were subsequently thanked for their participation and were excused. None of the participants expressed suspicion as to the connection between the prime and the feeling thermometer measure. Results from a mixed ANOVA revealed that there was no interaction between the prime and reported affect from the first time of measurement to the second time of measurement ($F(1,65) < 1$), providing evidence that there was no effect of priming health on reported affect.

Study 1

Participants and procedure

The purpose of study 1 was to test the prediction that activating a health goal would lead to devaluation of the hedonic value of a food brand that was high in calories but low in nutrients among participants who harbored highly positive affect toward the brand. In study 1, after obtaining consent to participate, we randomly assigned 98 undergraduate students (49.0% female) to one of two conditions: a health prime or a neutral prime. Participants completed either the health or neutral priming word search puzzle described in pre-test 1. Following the priming exercise, participants were shown a visual image of a soft drink brand logo (7-up), and were asked to consider their feelings toward it with the feeling thermometer task described in pre-test 2 ($M = 50.70$, $SD = 22.14$).

Participants were then directed to judge the product on a series of hedonic-related attributes ("has a good brand personality," "is tasty," "is sparkly," "is delicious," "brings back fond memories," "is fun to drink," "is indulgent," "smells good," "is comforting," and "is refreshing") embedded within a series of health-related attributes ("is healthy," "is nutritious," "is high in calories," (reverse coded), "is high in vitamins," "is low in fat," and "is low in sugar"). The health and hedonic items were interspersed with one another to obscure the study's predictions. Participants were then probed for suspicion using the same questions in the funnel debrief posed in the pre-test (with the exception of the final question being replaced with "Did you think the brand rating task could have been related to any other task? If yes, in what way were they related?") None of the participants expressed suspicion as to the connection between the prime and the dependent measure. Finally, participants were thanked for their participation, and were excused.

Results

A factor analysis with varimax rotation of all the product attribute measures revealed four factors with eigenvalues over one. All 10 hedonic-related attributes loaded onto factor one, which explained 34.35% of the variance in the data. The health attributes loaded onto the remaining three factors. The hedonic-related attri-

butes were then combined into one dependent measure of hedonic evaluation of the brand ($\alpha = .91$).

The priming task did not have an effect on the affect measure ($M_{HEALTH} = 52.48$, $M_{NEUTRAL} = 48.82$, $t < 1$), indicating that warmth toward the brand was resilient to the prime, as observed in pretest 2. Results from a full-factorial ANOVA model revealed a main effect of the affect measure ($\beta = .40$, $t = 4.32$, $p < .001$) but not prime ($M_{HEALTH} = 4.90$, $M_{NEUTRAL} = 4.82$, $t < 1$) on the hedonic evaluation of the product. This main effect was qualified by the predicted 2-way interaction of prime and felt affect ($F(1,93) = 3.55$, $p = .06$, see Fig. 1). Linear regressions within each condition reveal that higher levels of positive affect toward the product result in higher ratings on its hedonic attributes in the control/neutral prime condition ($\beta = .59$, $t = 4.92$, $p < .001$). However, in the health prime condition, the relationship between affect and judgment is not significant ($\beta = .19$, $t = 1.31$, $p = .20$).

In order to report contrasts for effects of prime when positive affect was "high" or "low," procedures described by Aiken and West (1991) were performed at one and two standard deviations above and below the mean. As expected, when positive affect was "high," hedonic ratings were less favorable among those participants primed with health (at $SD+1$, $t = 1.38$, $p = .09$; at $SD+2$, $t = 1.73$, $p < .05$). Unexpectedly, when positive affect was "low," hedonic ratings were more favorable among those participants primed with health (at $SD-1$, $t = 1.37$, $p = .09$; at $SD-2$, $t = 1.71$, $p < .05$). We will address this unexpected effect in the discussion of our results. These results suggest that the devaluation effect of the hedonic evaluation of a brand as a means to fulfill a health goal is present only for those who are actually most likely to derive this hedonic pleasure (i.e., those who harbor highly positive affect toward it).

To rule out the possibility of a heuristic that foods that taste good are not healthy (Raghunathan et al., 2006) drove the study's results, analysis was repeated with only the items that could be construed as being related to taste ("is refreshing," "is indulgent," "is tasty," "is sparkly," and "is delicious"). Only the main effect of the affect measure remained ($\beta = .38$, $t = 4.07$, $p < .001$); neither the main effect of prime ($M_{HEALTH} = 4.86$, $M_{NEUTRAL} = 4.65$, $t < 1$) nor the interaction ($F(1,96) = 1.30$, $p = .26$) was significant. We again repeated this analysis with the measures most directly related to taste ("is tasty," "is delicious"), and again found the same pattern of results. That is, we only replicated the main effect of affect on the taste measure ($\beta = .36$, $t = 3.78$, $p < .001$). Again, neither the main effect of prime ($M_{HEALTH} = 4.84$, $M_{NEUTRAL} = 4.63$, $t < 1$) nor the interaction was significant ($F(1,96) < 1$).

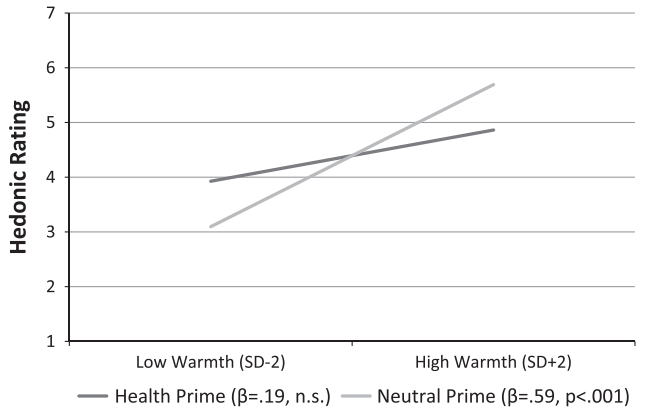

Fig. 1. Relationship between positive affect and hedonic evaluations as a function of prime (study 1: Soft drink).

Study 2

Participants and procedure

In study 2, we replicate and extend study 1 in a context where the product is more ambiguous in terms of its nutrition content. We assigned 93 participants (42.4% female) to the same priming conditions as in study 1. Presweetened breakfast cereals have both positive (added vitamins) and negative (high sugar) health attributes, so are more ambiguous on these attributes than sodas. Following the priming exercise used in the previous studies, participants reported their feelings toward a presweetened cereal brand (Kellogg's Frosted Flakes) on the affect/feeling thermometer measure used in the previous studies ($M = 61.81$, $SD = 19.39$). Participants were then directed to judge the product on a series of hedonic-related attributes ("has a good brand personality," "stays crunchy in milk," "has a good flavor," "has an appealing color," "has an appealing shape," "has a fun character," "brings back fond memories," and "has fun prizes") embedded within a series of health-related attributes ("is healthy," "is nutritious," "is low in calories," "is high in fiber," and "has a lot of added sugar" (reverse coded)). As in study 1, the health and hedonic items were interspersed with one another to obscure the study's predictions. Participants were then probed for suspicion using the same funnel debrief questions posed in the study 1, were thanked for their participation, and were excused. None of the participants expressed suspicion as to the connection between the prime and the dependent measure.

Results

A factor analysis with varimax rotation of all the product attribute measures revealed three factors with eigenvalues over one. The items "is nutritious," "is low in calories," and "is healthy" loaded onto factor 1, and the hedonic measures loaded onto factors 2 and 3. The hedonic factors were not easily categorized as being separate from each other, as both had sensory and branding elements; "has an appealing color," "stays crunchy in milk," "has a good flavor," "has fun prizes," and "has a lot of fiber" (unexpectedly) loaded onto factor 2, and the items "has a fun character," "has an appealing shape," "has a good brand personality," and "brings back fond memories" loaded onto factor 3. It is interesting to note that the item "has a lot of added sugar" loaded both onto factor 1 (a health factor) and factor 3 (a hedonic factor), perhaps because the question was worded differently than it was in study 1 (where it was worded, "is low in sugar" and only loaded onto a health factor). The hedonic-related attributes were then combined into one dependent measure of hedonic evaluation of the brand ($\alpha = .77$). We did not include the variable related to fiber in the dependent variable as we believed this to be an anomaly that it loaded onto a hedonic factor, and we did not include the variable related to added sugar as it was intended to be a health measure, but was ambiguous in meaning (that is, loaded negatively on a health factor but positively on a hedonic factor).

As in study 1, the priming task did not have an effect on the affect measure ($M_{HEALTH} = 63.74$, $M_{NEUTRAL} = 59.45$, $t = 1.06$, $p = .29$), again indicating that warmth toward the brand was resilient to the prime. Using a full-factorial ANOVA, we again observed a main effect of affect ($\beta = .22$, $t = 2.16$, $p < .05$) but not prime ($M_{HEALTH} = 4.16$, $M_{NEUTRAL} = 3.87$). As in study 1, the main effect was qualified by a 2-way interaction of prime and felt affect on hedonic judgments ($F(1,89) = 4.90$, $p < .05$, see Fig. 2). Linear regressions within each condition reveal that higher levels of positive affect toward the product result in higher ratings on its hedonic attributes in the control condition ($\beta = .41$, $t = 2.81$, $p < .01$). However, in a health prime condition, we again find that the relationship between positive affect and hedonic judgment is not significant ($\beta = -.05$, $t = -.35$) (*note*: We reran these analyses with

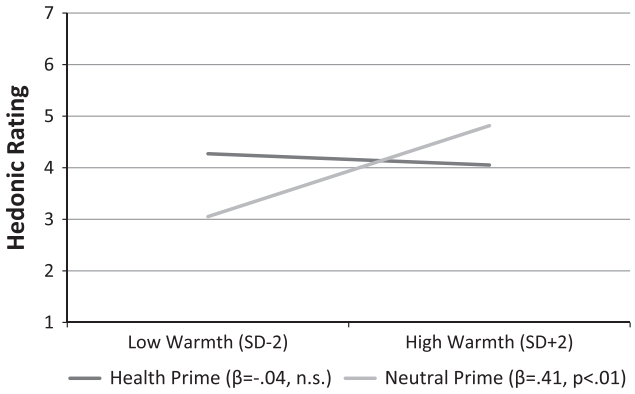

Fig. 2. Relationship between positive affect and hedonic evaluations as a function of prime (study 2: Presweetened cereal).

the sugar variable included in the composite hedonic measure and neither the pattern of effects nor the level of significance was affected).

As in study 1, contrasts were run using procedures developed by Aiken and West (1991). When positive affect was "high," hedonic evaluations were less positive among those participants who reported strongly positive affect when primed for health (at *SD*+1, $t = 1.05$, $p = .15$; at *SD*+2, $t = 1.53$, $p = .06$). As in study 1, these results suggest that the devaluation effect of the hedonic evaluation of a brand as a means to fulfill a health goal is present for those who are actually most likely to derive this hedonic pleasure (i.e., those who harbor highly positive affect toward it). As in study 1, there was an unexpected result of more favorable health judgments among those reporting negative affect toward the brand when health was primed (at *SD*−1, $t = 2.33$, $p < .05$, at *SD*−2, $t = 2.38$, $p < .05$). We will address this unexpected effect in the discussion of our results.

We again conducted additional analyses to rule out the possibility of a heuristic that foods that taste good are not healthy drove the study's results. Analysis was repeated with only the items that could be construed as being related to taste ("has a good flavor," and "stays crunchy in milk"). Neither the main effect of affect ($\beta = .16$, $t = 1.50$, $p = .14$), nor the main effect of prime ($M_{HEALTH} = 4.55$, $M_{NEUTRAL} = 4.20$, $t = 1.33$, $p = .19$), nor the interaction ($F(1,89) = 1.87$, $p = .18$) was significant. As in study 1, we repeated this analysis with the measure most directly related to taste ("has a good flavor") and again found the same pattern of results. That is, neither the main effect of affect ($\beta = .14$, $t = 1.31$, $p = .19$), nor the main effect of prime ($M_{HEALTH} = 4.84$, $M_{NEUTRAL} = 4.71$, $t < 1$), nor the interaction was significant ($F(1,89) < 1$). Because the item "has a lot of added sugar" loaded onto both health and hedonic items, we also reran the analysis with this item combined with the flavor item as a dependent variable. We found a marginal main effect of affect ($\beta = .18$, $t = 1.73$, $p = .09$), but neither the main effect of prime ($M_{HEALTH} = 5.19$, $M_{NEUTRAL} = 4.88$, $t = 1.23$, $p = .22$), nor the interaction was significant ($F(1,89) < 1$).

Discussion

Across two experimental studies, we find that activating health goals can result in less favorable hedonic judgments for people who harbor highly positive feelings toward junk food brands, but result in more favorable hedonic judgments for people who harbor highly negative feelings toward junk food brands. Our research has important theoretical implications by revealing boundary conditions for affect-congruency effects and for devaluation effects of goal priming. That is, priming a goal appears to only devalue judgments toward attributes that are in conflict with the primed goal when felt positive affect toward the object of evaluation is high. In contrast, it also appears that priming a goal when felt positive affect toward the object of the evaluation is low, actually leads to more favorable judgments that are in conflict with the primed goal (i.e., a revaluation effect).

Many public health campaigns highlight the fat or sugar content of foods, which unfortunately often has been shown to have little effect on behavior (Moorman, 1996; Russo, Staelin, Nolan, Russell, & Metcalf, 1986; Sharpe, Staelin, & Huber, 2008). We suggest that it is possible that one way to prod people into making better decisions is not to increase the attractiveness of healthy options, but decrease the attractiveness of unhealthy ones. Our results indicate that activating a health goal in a subtle manner has the potential to strip junk foods of their fun and sensory pleasure, the two things that primarily make these products desirable.

While it not outside the realm of possibility that demand effects could have driven some of our study's effects, we believe this to be highly unlikely. As stated previously, participants were probed for suspicion using a funnel debrief after the study. Participants did not express suspicion of what the hypotheses were in the studies, suggesting that there is a low likelihood of demand effects. In addition, we believe demand effects are unlikely for the following reasons: (1) the puzzle was quite difficult, and took from 10–20 min to complete; thus, participants were focused on the task of finding the words rather on what the words were or what they meant, (2) in the health prime, 50% of the words were not related to health, helping to mask that the puzzle was intended to prime health, (3) the hedonic and health-related items were mixed together, obscuring the fact that we were interested in any particular set of judgments, and (4) if there were strong demand effects, we believe that participants would be more likely to devalue the health-related judgments of the brand, which are directly linked to the prime; we also ran the analyses in both studies with health judgment as the dependent variable, and neither the main effect of prime nor the interaction was significant for health-related judgments in either study. Instead, participants devalued hedonic-related judgments.

The unexpected finding in studies one and two, that hedonic evaluations were more favorable among those reporting lower levels of positive affect when primed with health, provides an interesting avenue for future research. It is possible that when health goals are activated and a brand that is disliked is being evaluated, then perhaps a revaluation effect occurs (van Osselaer & Janiszewski, 2012). That is, when health is salient for people who evaluate a disliked food brand of questionable nutrition value, they could come to believe that they are underestimating the pleasure that would be derived from consuming it.

Our results suggest that, by exploiting attitude ambivalence toward food brands that are high in calories but low in nutrients, activating health goals can result in less favorable judgments of the hedonic value of junk food brands. Interestingly, the positive relationship between positive affect toward the brand and resulting hedonic judgments of the brand disappears when health goals are primed in a subtle manner. Our findings are consistent with previous research that demonstrates that nutrition-related judgments of beloved brands remain stubbornly resistant when health goals are activated. However, our research also shows that activating health goals strips these products of their hedonic value among those who are most likely to experience pleasure from consuming them, which could lead to a lower likelihood of consuming them. Even so, the application of activating health goals on improving diets is limited, because our findings also revealed that activating health goals actually increases the expected hedonic value from junk foods among people who are least likely to experience pleasure from consuming them. Thus, it is possible in this case that

activating a health goal could be counterproductive and actually lead to an increase in junk food consumption.

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