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Brief Report: Effects of Subtle and Explicit Health Messages on Food Choice

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Abstract

Objective—Explicitly—as opposed to subtly—labeling a food healthy may inadvertently license people to indulge, imply that the food tastes bad, or lead to reactance. We investigated the effects of explicit and subtle health messages on individuals' food selection in two field studies.

Methods—We manipulated the signs on healthy foods such that they explicitly stated that the food was healthy, subtly suggested it with an image, or did not mention health. As participants, attendees at academic conferences, approached registration tables, research assistants recorded the number and type of snacks individuals chose.

Results—Participants were more likely to choose the healthy food when it was labeled with the subtle health message than when it was labeled with the explicit health message, which itself was not more effective than the control message.

Conclusion—Subtle messages may be more useful than explicit health messages in encouraging individuals to make a healthy snack choice.

Keywords

health communication; eating

The prevalence of obesity in the United States is increasing (Ogden & Carroll, 2010), and researchers have investigated many ways to reduce it, from including nutrition information on menus to changing the food offerings in schools. Many of the new front-of-package labels being formalized by the Food and Drug Administration (e.g., calories per serving and grams of fat) are similar to those currently used on the backs of packages with mixed success. In one study, for example, participants averaged only 69% correct on a comprehension test of the information on food labels they were shown (Rothman et al., 2006). If these labels are ineffective because people find them difficult to understand, then a less complicated label may be more effective at leading to healthy choices.

One possible strategy is to forgo the complicated numerical information and to explicitly and overtly label healthy foods as 'healthy.' There are several reasons, however, why calling a food healthy may backfire. First, when food is described as healthy, people have been shown to rate it as less tasty and report enjoying it less (Raghunathan et al., 2006). Second,

the mere presence of a healthy option on a menu can lead individuals to believe they have fulfilled their health goal (referred to as a “health halo effect;” Wilcox, Vallen, Block, & Fitzsimons, 2009), which itself can lead to goal violations by making that goal less accessible (Finkelstein & Fishbach, 2010). Believing that the health goal has been fulfilled can also lead to individuals feeling ‘licensed’ to indulge (Chiou, Yang, & Wan, 2011; see also Wilde, 1982). This may be why people are more likely to choose an unhealthy side dish when they are given a healthy main course (Chandon & Wansink, 2007).

A third reason explicit health labels may backfire is by causing reactance—threatening people’s feeling that they are free to do what they wish—thereby leading them to do the opposite (Brehm, 1966). When the high fat content in cream cheese was presented as a warning label, participants reported a stronger desire to taste it than did participants who read the same information but not presented as a warning (Bushman, 1998). Individuals may have perceived the warning as a threat to their freedom.

One potentially useful strategy to promote healthy eating may be to subtly, rather than explicitly, indicate the healthfulness of a food. By not explicitly drawing attention to the healthfulness of a food, subtle health messages, such as healthy images rather than words, might avoid several of the pitfalls associated with explicit messages. First, a more subtle health message may not cause people to believe they have fulfilled their health goal, so they may not feel licensed to indulge, and the health goal would remain accessible (Finkelstein & Fishbach, 2010). Second, a subtle health message may be less likely to be perceived as a command to behave in a certain way and therefore be less likely to cause reactance.

There is limited research on the effects of subtle health labels, and to our knowledge, no studies have looked at the effects of subtle health messages on actual behavior. One study examined the role of color on health messages, and found that participants rated a green calorie label as healthier than a red one (Schuldt, 2013). Another study found that participants exposed to a health image (a red heart with a white check-mark on it) on a menu item reported stronger intentions to purchase that item than participants who were not shown that image (Kozup, Creyer, & Burton, 2003). However, they did not include an explicit health message, so we cannot compare the subtle health image to an explicit health message.

In the present studies, we sought to compare the effects of subtle and explicit health messages on individuals’ real life food choices. In two field studies, adults were observed as they selected from labeled baskets of healthy and indulgent snacks. We manipulated the health messages on the snacks and unobtrusively recorded which items individuals took. We hypothesized that subtle—but not explicit—health messages would be effective in leading to healthy choices, compared to a neutral control message.

Study 1

Methods

Participants—Participants were 369 attendees (n=171 females) at an experimental social psychology conference. Individuals counted as study participants only if they checked in at the conference registration booth and received a name-tag for the conference. Across the

three conditions, 131 participants were exposed to the control sign, 123 to the explicit health message sign, and 115 to the subtle health message sign.

Procedure—Three baskets of snack foods were displayed on the counter of the conference registration booth in such a way that conference attendees could not help but see them as they registered. The foods were a hospitality gesture from the conference hosts, and signs on the baskets described the local provenance of each food.

One basket contained apples. One of three different signs was displayed in front of it, and the signs were unobtrusively rotated every 20 minutes. All three signs had the following words: ‘Honeycrisp Apples. Developed at the University of Minnesota in 1974,’ as well as additional content reflecting the experimental condition. The control sign’s additional content read: ‘Minnesota’s State Fruit’ and had an image of the Minnesota state seal. The explicit health message included the words ‘A Healthy Choice’ (instead of ‘Minnesota’s State Fruit’) and the same image of the state seal as the control sign. The subtle health message had the same words (‘Minnesota’s State Fruit’) as the control sign, but instead of the state seal image, it had an image of a red heart with a white check mark on it, a commonly used indication that a food item is healthy. The other two baskets had nut candy bars and individual bags of coffee beans, and each had one sign (unrelated to health) that remained in place throughout the study.

Participants were free to help themselves from each basket. Registration attendants were instructed to make no comments about the foods unless participants directly asked them if they were allowed to take from each basket. In those cases, the attendant was instructed to say yes without elaborating. Research assistants were sitting unobtrusively nearby, and they recorded the time, the number and type of snacks selected, and the participants’ gender. All of our methods were approved by our university’s IRB committee.

Results and Discussion

As we predicted, significantly more participants who were exposed to the subtle health message selected an apple (63%) than did participants who were exposed to the explicit health message (45.5%) or the control sign (43.5%), $\chi^2(2, N = 369) = 10.50, p = .005$ (See Figure 1, left-hand bars). The signs on the apples did not affect selection of candy, $\chi^2(2, N = 369) = 3.67, p = .159$, or coffee, $\chi^2(2, N = 369) = 3.135, p = .209$, suggesting that health halo effects did not occur. In addition, there were no significant gender differences on snack choice.

Study 1 is the first evidence that a subtle message is more effective than an explicit message in inducing healthy behavior and that an explicit message is no more effective than a neutral control message. Study 2 was designed to replicate the findings from Study 1 with a non-psychologist participant population, different foods, and different messages, thereby enhancing the generalizability of our findings.

Study 2

In Study 2 we again manipulated the messages on signs for healthy snacks and observed the choices individuals made as they checked in for an academic conference.

Methods

Participants—Study 2 was part of a larger study (described elsewhere) exploring the effects of different kinds of health-related and non-health-related explicit messages (Wagner, Howland, & Mann, in preparation). Participants in the relevant conditions of Study 2 for this replication study were 292 attendees ($n = 158$ male) at a virology conference. Similar to Study 1, conference attendees qualified as participants when they first went through the registration process.

Procedure—Each registration booth had a basket of small bags of mini carrots and a basket of individual bags of potato chips in front of it. The indulgent choice, the chips, always had the same sign, which read: ‘Potato Chips. A Snack,’ followed by the logo of the local potato chip brand. The healthy option, carrots, had three signs analogous to those in Study 1. They all had the word ‘Carrots’ on them, followed by an additional phrase and an image, which varied according to condition. The control sign’s additional content read: ‘A Snack’ and had the logo of the host university. The explicit health message included the words ‘A Healthy Snack’ and the same university logo. The subtle health message had the same words as the control sign, plus the same image of a red heart with a white check mark on it from Study 1. The food packages themselves contained no messages—subtle or explicit—about the health of the items.

Research assistants unobtrusively rotated the signs every 20 minutes over the two days of conference registration. The time, the number and type of snacks chosen by participants, and participants’ gender were recorded. Registration attendants were again instructed to say yes if participants asked if they could take both items but otherwise to not comment on the snacks to the participants.

Results and Discussion

Participants were less likely to take snacks at mealtimes, so these analyses control for mealtime by including it along with sign condition in a logistic regression predicting whether participants took carrots. Sign condition was a significant predictor of whether individuals selected the healthy option, Wald statistic ($df = 2$) = 6.120, $p = .047$. Significantly more participants exposed to the subtle health message (32.2%) took carrots than participants exposed to the explicit health message (18.8%, $B = -.763$, Wald statistic ($df = 1$) = 4.147, $p = .042$) or the control message (17.9%, $B = -.832$, Wald statistic ($df = 1$) = 5.097, $p = .024$). It appears that the overall effect is driven by female participants, who were significantly more likely to take the healthy option (29.9%) than males (17.1%), $\chi^2(df = 1) = 6.68$, $p = .01$ (see Figure 1). So few males took the healthy option ($n=27$ across the three conditions) that a floor effect cannot be ruled out. Sign condition was not a significant predictor of whether individuals selected chips, according to a logistic regression (Wald statistic ($df = 2$) = 2.549, $p = .280$), which suggests that a health halo effect did not occur.

General Discussion

Both of our field studies found that a typical form of health message—one that explicitly calls an item healthy—was ineffective at persuading individuals to select that item, whereas a subtle message that refers to health with an image was effective. We have proposed several possible explanations for the success of the image, but we were not able to pinpoint just one (although all may be true). In addition to examining the influence of these potential mechanisms, future research might also examine the role of dual process models in explaining these effects (Moskowitz, Skurnik, & Galinsky, 1999; Petty & Cacioppo, 1986). It is possible that the subtle messages employed here are operating implicitly, or outside of conscious awareness, which may minimize reactance or the license to indulge. It is also possible that individuals could react differently to explicit health messages when few versus many cognitive resources are available (Fiske & Taylor, 1991). In particular, an explicit message perceived under cognitive load may have a similar effect as a subtle message.

It is also possible that the image may have been more effective than the explicit message because the subtle health message, being a colored image, may have been viewed as more positive than the explicit health message. To rule out this possibility, we followed up our field studies with an online study using Amazon's Mechanical Turk. Seventy-two participants rated the subtle message (the red heart with a white checkmark on it) and the explicit message (the word 'healthy') on their level of positivity (from 1 *very negative* to 7 *very positive*). A subset of the subjects ($n=23$) also rated a white checkmark, a red heart, and a yellow smiley face on the same scale. Using within-subjects paired samples *t*-tests, we found that the subtle message was not rated more positively than the explicit message, $t(71) = -1.050$, $p=.297$, and was rated significantly less positively than the images of the heart alone, $t(22) = -4.796$, $p<.000$, and smiley face, $t(22) = -6.754$, $p<.000$, as well as marginally less positively than the check mark alone, $t(22) = -1.924$, $p=.067$. Because participants did not find the subtle message more positive than the explicit one, it seems unlikely that a positivity bias accounts for the different effects of the signs; however future research should consider differences between graphical versus verbal messages more generally.

Interestingly, in Study 2 the effect of subtle messages was far stronger for females than for males. This may be due to a floor effect, as very few males opted to take carrots. It may also be the case that women are more likely than men to be influenced by health-related messages, particularly in the area of eating, perhaps because women are more likely to diet and be stigmatized for being overweight than men (Beardsworth et al., 2002). Future research should further examine gender as an important moderator of this effect.

These are the first studies (to our knowledge) to examine the effects of subtle and explicit health messages on individuals' food choices. However, we only measured food choice, not consumption, and consumption may be differently influenced by these messages. Even so, selecting food is the first step toward healthy eating and is highly predictive of food consumption (Wansink, 2006).

Although these studies find a common form of health communication to be ineffective, we also present a promising alternative strategy for researchers and policy makers who are

attempting to create persuasive health labels. Instead of explicitly drawing individuals' attention to the healthfulness of a particular food option, subtly indicating the health relevance of the option may be a more effective way to persuade individuals to make healthy choices and ultimately to consume a healthy diet.

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Figure 1.
Percent (unadjusted) of participants selecting the healthy option in Study 1 and Study 2 by message type.