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Advertising Framing Effects and Consideration of Future Consequences

Many consumers have a difficult time considering the future consequences of their behaviors and are prone to discount future health risks. The two experiments presented here test the effectiveness of framing techniques designed to persuade consumers who typically do not consider the future consequences of their behaviors to make better health decisions. Results from Study 1 show that present-oriented consumers can be more strongly persuaded by messages that emphasize proximal rather than distal consequences of unhealthy food choices. Findings of Study 2 suggest that messages focused on promotion strategies (vs. prevention strategies) result in higher behavioral intentions for present-oriented consumers.

Approximately one-third of Americans are overweight and another third are obese (Centers for Disease Control and Prevention [CDC] 2010). Being overweight increases the risk for the top three causes of death for Americans—heart disease, cancer and cerebrovascular ailments (including strokes)—and is strongly linked to the sixth leading killer, diabetes (CDC 2009). Body fat, obesity and associated health ailments are oftentimes directly related to consumers' choices, behaviors and lifestyles. Lifestyle behaviors such as unhealthy diets (overeating) and lack of exercise contribute to the obesity epidemic and pose a severe risk to public health.

Studying why people consistently make poor health decisions—overeating and lack of exercise—with potentially harmful long-term consequences is a difficult and complicated task (Nayga 2000; Mazis and Raymond 1997). One explanation as to why some consumers make poor health decisions is that they may have a lower propensity to consider the future consequences of their behavior. Given the recent media attention to the obesity epidemic, it is likely that most consumers are aware of the relationship between diet and exercise behaviors and weight-related disorders (Binkley 2006; Huston and Finke 2003). However, differences

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The Journal of Consumer Affairs, Spring 2011: 7–32
ISSN 0022-0078

in the degree to which people are concerned with the potential future consequence behaviors may play a strong role in the decisions they make related to eating and exercising.

In addition to individual factors, public health communication has become a popular way to try to persuade consumers to make better health decisions. Health messages can and often do vary in terms of how they are framed (or phrased), and it is sometimes unclear what specific messages resonate with consumers. Message framing is a generic term representing how a message is presented. For instance, health information can be communicated in terms of raw numbers (18 million Americans per year suffer from diabetes), cost (diabetes costs the US $132 billion annually) and percentages (diabetes afflicts 6.3% of the US population). The meaning and effectiveness of the message is determined, in large part, by how it is framed. Consumers can construe objective information as more or less meaningful, relevant and important depending on the message frame. Some research has shown that framing a health risk message in a manner that makes the risk seem more immediate (i.e., days) rather than distant (i.e., years) can effectively persuade consumers to take the risks more seriously (Chandran and Menon 2004). Moreover, health-related persuasive messages can be promotional (eat more fruits and vegetables to achieve good health) or preventive (avoid foods high in saturated fat to avoid poor health).

This article will examine whether an individual's time orientation (present vs. future) will influence their perception of and intent to act on health advertisements that differ in the framing of the health message. Study 1 examines ads that are framed in two different ways: (1) proximal framed messages and (2) distally framed messages. Study 2 examines promotion framed messages vs. prevention framed messages.

CONCEPTUALIZATION AND HYPOTHESES

Temporal Framing Effects

Many studies in marketing and psychology have demonstrated robust message framing effects across a variety of domains (see Levin, Schneider, and Gaeth 1998 for a review). Research in the health risk area has demonstrated that message persuasion can be influenced by the various ways in which health-related outcomes can be framed, such as point of reference and fear framing effects (Block and Keller 1995). Some research also suggests that temporal framing can influence message effectiveness. Temporal framing refers to the presentation of a message using a specific reference to time (Chandran and Menon 2004). Temporal

framing takes an objectively neutral reference period (e.g., many people die from heart disease) and applies a temporal aspect to make the event in the message seem more near (every day, many people die from heart disease) or distant in time (every year, many people die from heart disease). Strathman et al. (1994) found that framing the advantages and disadvantages of offshore drilling as either immediate or distant can influence consumer attitudes toward the drilling. In researching temporal framing effects, Chandran and Menon (2004) ran three studies across three different health domains: mononucleosis, cell phone radiation and heart disease. Their results showed that when a health hazard message is presented in a day frame (vs. a year frame), the risks of the hazard are construed as more proximal and concrete, resulting in decreased self-positivity bias, higher levels of personal risk perceptions and stronger intentions to engage in preventive health behaviors. Outside the research reviewed here, however, few studies have examined temporal framing effects (e.g., Liberman and Trope 1998; Orbell, Perugini, and Rakow 2004), and among those studies, the specific conditions under which the temporal message framing can influence consumers are unclear.

Construal level theory (CLT) suggests that perceptions of temporal distance systematically alter the way future events are construed and thus, influence the evaluation and choices related to those events (Liberman and Trope 2003). One explanation of why many consumers fail to take action to prevent health problems is that they often see potential health risks as occurring in the distant future. For instance, adverse health problems that stem from an unhealthy diet typically develop over many years. According to CLT, if representations of a future health risk are made more proximal and thus more concrete, consumers should be more likely to take the risk seriously and engage in preventive behaviors to minimize it.

Time Orientation

Time orientation can be conceptualized as the extent to which individuals consider and are influenced by the potential outcomes of their present behavior (Strathman et al. 1994). Research suggests that individuals differ in the extent to which they consider the future outcomes of their behaviors (e.g., Strathman et al. 1994; Zimbardo and Boyd 1999). Some tend to seek immediate gratification and fail to (or choose not to) consider the future implications of their behaviors. At some point or another, everyone is likely to make spur-of-the-moment decisions

that later cause regret. However, there is strong evidence that a certain segment of consumers is more likely to make such decisions on a regular basis, across different aspects of their lives (Joireman, Sprott, and Spangenberg 2005). Similarly, even though everyone is likely to consider the future in some capacity, some consumers more heavily weigh the future consequences of their behaviors when making decisions.

One implication of time orientation is that present- and future-oriented individuals should have different levels of concern about potential long-term consequences of their behaviors. Prior research has shown that future-oriented individuals are more concerned with potential negative future consequences and are more likely to take protective measures that will minimize future health risks. Present-oriented individuals are generally less concerned with potential future risks (Strathman et al. 1994).

Various studies have observed individual differences in time orientation. For instance, Dorr, Krueckeberg, and Strathman (1999) explored multiple correlates of HIV testing and found that time orientation was a significant predictor of individuals' likelihood to get tested. Results suggested that those who tend to heavily weigh the long-term consequences of their behavior were more likely than those with more of a present orientation to seek HIV testing. Lindsay and Strathman (1997) demonstrated that future-oriented individuals reported more willingness to recycle despite the fact that the effects of ecologically beneficial behaviors such as recycling do not produce immediate and noticeable positive environmental results. In a study of financial planning, Howlett, Kees, and Kemp (2008) found that future orientation can affect consumers' willingness to invest in a retirement plan. Other studies have demonstrated that future-oriented individuals report stronger pro-environmental political intentions and stronger preferences for public transportation (Joireman et al. 2001). Despite the large amount of literature devoted to studying individual differences in time orientation, very few studies examine how this factor influences health risk perceptions and how consumers with varying levels of temporal orientation respond to health risk messages in public service advertisements.

Consistent with the concept of individual differences in time orientation and past research published on the topic, it is expected that time orientation (operationalized as "consideration of future consequences" or CFC) should be positively correlated with consumers' perceived vulnerability and severity of the health risks of an unhealthy diet. It is important to understand the relationship between time orientation and risk because a focal goal of this research is to study ways in which public health

officials can more effectively communicate future health risks to consumer segments that typically discount them. Hypothesis 1 predicts that the perception of health risk vulnerability and severity will increase as consumers' future orientation increases:

> H1: There will be a positive relationship between consumers' time orientation and (1) perceived vulnerability to health risks and (2) perceived severity of health risks. Consumers with higher levels of future orientation will report higher levels of risk perception for potential risks that typically are long-term in nature.

CFC and Temporal Framing

Some evidence in the literature indicates that the temporal frame of a message can affect individuals differently depending on how concerned they are with the future consequences of their behaviors (Strathman et al. 1994). For instance, in a study of colorectal cancer screening, Orbell, Perugini, and Rakow (2004) found that individuals who are typically concerned with future consequences are more likely to participate in screening than those who are not. Furthermore, study participants were more receptive to the idea of screening when its positive benefits were framed as immediate. Although these results suggest a relationship between message framing and temporal orientation, it is not clear how consumers with varying levels of temporal orientation will respond to a persuasive health message focused on a risk that is temporally distant in nature or how the temporal frame of the message might influence persuasion and intentions. When health risks in a persuasive message are framed as occurring sometime in the distant future (e.g., the effects of poor dieting/exercising habits often take years to materialize), future-oriented consumers should find a health promotion ad more persuasive and have higher intentions to engage in preventive behaviors than present-oriented consumers. Framing the risk in more proximal terms should have a strong effect on present-oriented individuals, resulting in more positive evaluations of the ad than when the risk is framed in distal terms. However, evaluations of the ad for future-oriented consumers should not be influenced by the time frame manipulation and should remain relatively high.

In summary, H2 predicts that framing the risk in proximal (vs. distal) terms will result in higher levels of persuasion and higher intentions to engage in preventive behaviors for present-oriented consumers. Future-oriented consumers should report high levels of persuasion and behavioral intentions regardless of the temporal frame of the message

and should be influenced to a lesser extent by the proximal frame than present-oriented consumers. Thus,

H2a: When an ad message is framed in proximal terms, present-oriented consumers will report higher levels of (1) persuasion and (2) behavioral intentions for preventive behaviors than when the ad message is framed in distal terms.

H2b: When an ad message is framed in proximal terms, future-oriented consumers will report the same levels of (1) persuasion and (2) behavioral intentions for preventive behaviors as when the ad message is framed in distal terms.

STUDY 1

Study 1 was designed to examine the relationship between consumers' time orientation and risk perceptions and then test the temporal framing of a health message. The purpose was to see whether the proximal framing of a risk message in a public service advertisement can effectively increase persuasion and behavioral intentions for consumers who are typically less concerned with the future consequences of their behaviors.

Method

Design, Procedure and Sample

Study 1 was a 2 (temporal frame) × 2 (time orientation) between-subjects experiment. Participants were 119 undergraduate business students enrolled at a major university who were entered into a prize drawing for taking part in the study. Their mean age was 23, with a range of 21 to 32, and 40% were male. Cell sizes ranged from 27 to 33 (proximal frame/present orientation = 33, proximal frame/future orientation = 27, distal frame/present orientation = 27 and distal frame/future orientation = 32). Young adults are an especially relevant population to study considering the obesity rate for this segment of the population has tripled in the past 30 years (CDC 2009).

The study was conducted in a classroom setting, where participants were told that the purpose was to test the effectiveness of a public service announcement directed toward college students. After being randomly assigned to one of the two temporal frame conditions, the participants were asked to look at a four-color, professionally designed ad mock-up informing them of the health risks associated with fast food consumption. The temporal frame was manipulated by altering the time period in which consumers of high-fat fast food may suffer adverse health effects from eating such meals. In the proximal frame condition, the ad suggested that

fast food consumption can have an immediate negative impact on health, whereas for the distal frame condition, it referred to the negative effect of eating fast food over time. Time orientation was a measured variable (described below). The temporal frame manipulation that appeared in the text of the ad is shown below:

> More Healthy Food Choices Help Prevent (immediate/long-term) Health Risks. Good food choices can help you avoid (short-term/long-term) health risks!! In a study of fast food consumption, researchers at Yale University found evidence of damaged blood vessels and extreme spikes in harmful blood fat called triglycerides (just two hours after the consumption of a high-fat fast food meal/in people who consume a regular diet of high-fat fast food meals). (Within two hours after the fast food meal/Over time), subjects also had higher blood pressure and reported lower energy levels than those who consumed a low-fat meal. The study concluded that a healthy, low-fat meal can help you prevent health risks in the (short-term/long-term). Want to prevent health risks? . . . Avoid high-fat fast food!

A statement at the bottom of the ad reported that "This message is brought to you by the National Council on Nutrition and Exercise" to boost its credibility. That statement and all other aspects of the ad other than the temporal frame manipulation remained invariant across conditions. After viewing the mock public service ad and completing the dependent measures section, participants completed the 12-item CFC scale, manipulation and confound checks and were debriefed and dismissed.

Measures

Manipulation and Confound Checks

A manipulation check was used to verify that the temporal frame manipulation made the risk of experiencing adverse health effects from fast food seem more proximal in time to participants. As a measure of the perception of the proximity of the risk, participants reported their "perception of how soon they incur the health risks of consuming high-calorie, high-fat fast food." The two items were measured using 7-point semantic-differential scales anchored with "very soon/sometime much later" and "the near future/the distant future." This temporal frame manipulation check is similar to what has been used in previous research (e.g., Chandran and Menon 2004). Reliability of this measure was adequate ($r = .96$). To alleviate the concern that participants would not find the proximal temporal frame condition believable, they were asked to report how believable the message was, again using two 7-point semantic-differential scales anchored by "not very believable/

very believable" and "not very credible/very credible" (Beltramini 1988; $r = .74$).

Time Orientation

At the end of the measures section of the survey instrument, participants completed the 12-item CFC scale as described in Strathman et al. (1994). CFC was used as a proxy for time orientation in both studies. Participants were asked to use a 7-point scale ("strongly disagree" to "strongly agree") to indicate whether certain statements were characteristic of them. The items included "I consider how things might be in the future, and try to influence those things with my day-to-day behavior" and "I am willing to sacrifice my immediate happiness or well-being in order to achieve future outcomes." Responses to the seven reverse-coded items were recoded and then averaged along with the remaining five items. The reliability estimate for the measure was acceptable (Cronbach's $\alpha = .85$). Higher scores indicated a future orientation, whereas lower scores represented a present orientation. As in previous research, a median split was performed to represent present- vs. future-oriented consumers (e.g., Boninger, Gleicher, and Strathman 1994; Joireman, Sprott, and Spangenberg 2005).

Dependent Variables

Persuasiveness of the advertisement was measured using items that have been used in past research (Aaker and Lee 2001). Participants were asked to respond to the statement "The information presented in this public service ad is . . ." across three 7-point semantic differential items anchored with "not at all effective/very effective," "not at all impactful/very impactful" and "not at all convincing/very convincing" (Cronbach's $\alpha = .90$). Behavioral intentions resulting from exposure to the ad were measured with three items, which were 7-point semantic differentials anchored with "not likely at all/very likely." These items included "how likely are you to make a healthy food choice for your next meal," "how likely are you to consume fast food that is high in calories and fat over the next week (reverse coded)" and "how likely are you to try to pay closer attention to the nutritional content of the fast food items you consume." These items were averaged to form the intentions measure ($\alpha = .78$). These items were adapted from intentions variables used in previous research (e.g., Chandran and Menon 2004).

General perceived risk was measured by having participants rate the severity of the risks associated with regular fast food consumption and their perceived vulnerability to such risks (Keller, Lipkus, and Rimer

2003; Menon, Block, and Ramanathan 2002; Raghubir and Menon 1998). To measure risk severity, participants rated the "magnitude of the risk of consuming fast food that is high in calories and fat" on three 7-point scales with the endpoints "not severe at all/very severe," "not serious at all/very serious" and "not frightening at all/very frightening" ($\alpha = .88$). Finally, vulnerability was measured by asking participants to estimate their likelihood of experiencing negative health effects from consuming high-calorie, high-fat fast food on two 7-point scales with the endpoints "no chance/certain to happen" and "very unlikely/very likely" ($r = .94$).

Results

Manipulation and Confound Checks

To check for efficacy of the temporal frame manipulation, an independent samples t-test using the two levels of temporal frame was run on the manipulation check variable. Results showed that the proximal frame was perceived as closer in time ($M = 2.22$) than the distal frame ($M = 4.52, t = 8.897, p < .01$). Results also showed no difference between the two temporal frame conditions for believability of the ad ($t = 0.67,\ p > .20$). Both the proximal ($M = 5.46$) and distal ($M = 5.60$) conditions were rated as believable. Only 6% of the sample fell below the scale midpoint on believability.

General Findings

H1 posited the relationship between consumers' time orientation (as measured by the CFC scale) and risk perceptions related to the ad stimuli. Consistent with predictions, results showed a significant positive correlation between time orientation and the perceived severity of the health risks of fast food ($r = .26, p < .05$) and participants' own personal vulnerability to the risks ($r = .31, p < .05$). As predicted, these findings indicated that present-oriented consumers seem to discount future risks more than future-oriented consumers, thus providing support for H1.

To examine effects of temporal frame and time orientation factors on the dependent variables, multivariate analysis of variance with follow-up univariate tests and contrasts was performed.[1] Multivariate effects were significant for temporal frame (Wilks' $\lambda = 0.87, F = 2.79, p < .05$)

1. In both studies, predictions tested using regression analysis yielded similar results. For instance, in Study 1, the predictors of temporal frame and CFC were centered and an interaction term was created. The interaction was significant for both persuasion ($B = 0.30, t = 3.38, p < .05$) and intentions ($B = 0.19, t = 2.05, p < .05$).

TABLE 1
Summary of Effects for Studies 1 and 2

Independent Variables	df	Univariate F Values	
		Persuasion	Intentions
Study 1			
Temporal frame (TF)	1,115	8.11*	1.20
Future orientation (FO)	1,115	0.33	0.87
TF × FO	1,115	5.85*	2.98*
Study 2			
BMI (covariate)	1,276	4.36*	9.38*
Regulatory focus (RF)	1,276	0.75	6.56*
FO	1,276	2.07	8.18*
RF × FO	1,276	0.40	0.91

*$p < .05$.

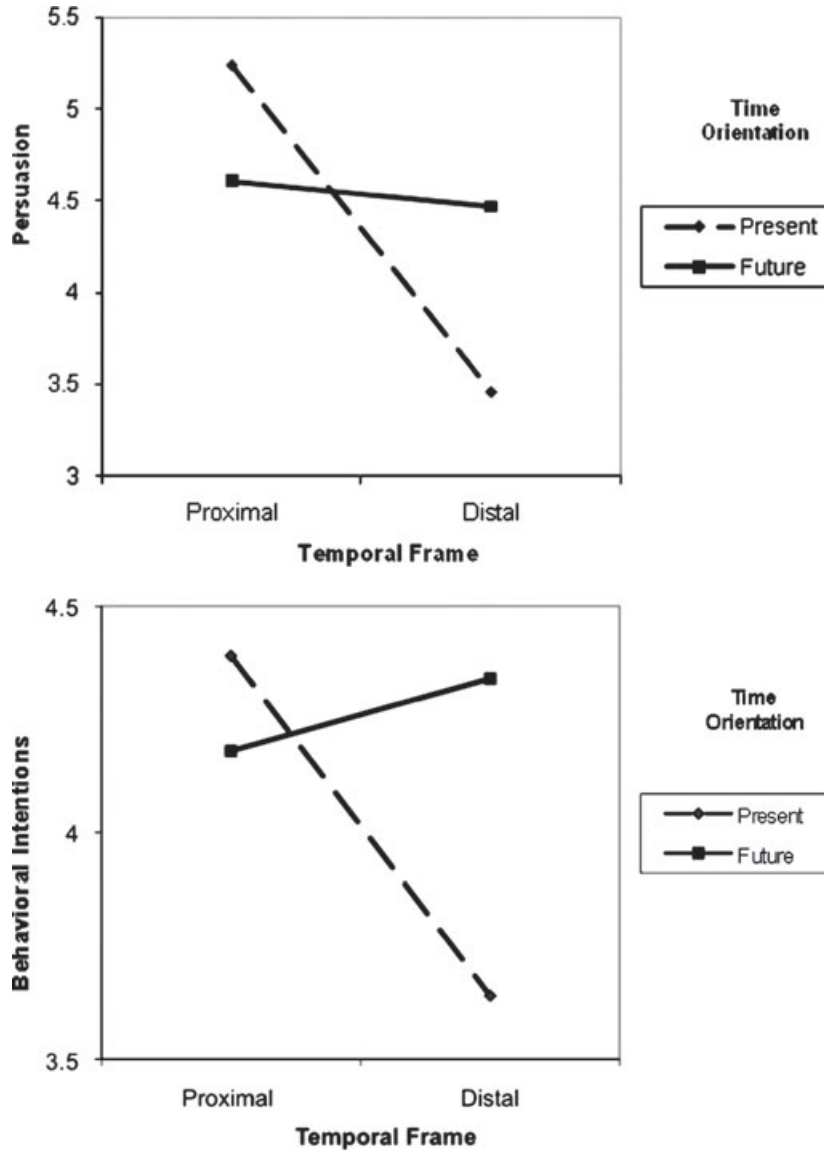
but not time orientation (Wilks' $\lambda = 0.95, F = 0.98,$ ns). The two-way interaction effect of temporal frame and time orientation (Wilks' $\lambda = 0.89, F = 2.16, p < .05$) was also significant. Univariate effects are discussed below.

As shown in the top portion of Table 1, the temporal frame by time orientation interaction effect was significant for persuasion ($F = 5.85, p < .05$) and behavioral intentions ($F = 2.98, p < .05$). The nature of this interaction was similar across both dependent variables (see plots in Figure 1). Future-oriented consumers reported relatively high and consistent levels of persuasion and behavioral intentions across the two temporal frame conditions. Present-oriented consumers reported low levels of persuasion ($M = 3.46$) and intentions ($M = 3.64$) in the distal temporal frame condition. However, as predicted, this group reported significantly higher levels of persuasion ($M = 5.24, t = 3.72, p < .05$) and behavioral intentions ($M = 4.39, t = 1.93, p < .05$) when the ad message was framed in proximal terms. These findings support H2a and b. Findings also suggested a main effect of a temporal frame on persuasion ($F = 8.11, p < .05$) such that the proximal frame resulted in higher overall persuasion than the distal frame. Time orientation did not significantly affect the dependent variables.

Study 1 Discussion

Findings from Study 1 supported the initial predictions that present-oriented consumers have a higher tendency to discount future health risks than future-oriented consumers. More importantly, findings suggest that

FIGURE 1
Study 1: Temporal Frame × Time Orientation Interactions



an ad that frames health risks in proximal terms can be more persuasive and increase behavioral intentions to engage in healthier activities for young adults who are less likely to consider the future outcomes of their behaviors.

Study 2 was designed to expand the scope of Study 1 and examine how individual differences in time orientation may influence the effectiveness of ads that differ in their regulatory focus. Study 2 also expands the scope of Study 1 by targeting a different substantive domain. While Study 1 is concerned with communicating health risks, Study 2 deals with persuading young adults to properly manage body weight.

STUDY 2

The purpose of Study 2 was to examine the concept of regulatory focus. Consistent with Study 1, it examines the effectiveness of a health-related public service advertisement, with a central focus on the individual difference construct of time orientation (again operationalized as CFC).

Additional Hypotheses for Study 2

Regulatory focus theory (Higgins 1997) suggests that individuals tend to adopt one of two basic motivational orientations during goal pursuit: prevention or promotion. A prevention focus involves the sensitivity to negative outcomes and goals associated with security and responsibility. This concept is especially important and relevant in the public health domain as much preventive health behavior can be framed in prevention terms or promotion terms. For instance, in the context of managing body weight, people may focus on avoiding fast food or trying not to spend too much time watching television. A promotion focus, in contrast, involves the sensitivity to positive outcomes and goals associated with advancement and achievement. Those wanting to effectively manage their weight may focus on eating more fruits and vegetables or spend more time exercising. In this example, each regulatory frame involves different strategic means to achieve the same goal of body weight management. Thus, regulatory focus is conceptualized here in terms of strategic means of self-regulation rather than outcomes or end states (Higgins 1997; Pham and Higgins 2005).

The small amount of literature on the relationship between regulatory focus and time orientation suggests that prevention goals tend to be construed generally as short term in nature. Pennington, Aaker, and Mogilner (When is “not so bad” actually quite good? Purchase proximity, temporal construal, and persuasiveness of prevention-framed product information, unpublished data) have demonstrated that temporal distance

can influence how persuasive promotion vs. prevention-focused messages are perceived. Specifically, for near-future purchases, consumers tend to be more persuaded by a prevention focus. The research has further demonstrated that changes in consumers' mental representations of near and distant goals heighten the relative effectiveness of promotion vs. prevention in ad messages. Such a regulatory focus is consistent with how future-oriented consumers typically pursue goals but inconsistent with more present-oriented consumers. Recall that future-oriented consumers tend to be concerned about the consequences of their behaviors and thus take action in the short term that will maximize their long-term well-being. It follows that a prevention orientation is more consistent with a future-oriented consumer's drive to act immediately to preserve health. Based on previous findings in the time orientation and regulatory focus literatures, it is expected that future-oriented consumers will evaluate prevention-framed health messages more positively than present-oriented consumers.

H3a: When an ad is prevention-framed, future-oriented consumers will report (1) higher levels of persuasion and (2) increased intentions for preventive behaviors than present-oriented consumers.

Promotion goals tend to be maximal in nature (e.g., extremely ambitious) and geared toward accomplishment or achievement. For example, when Pennington and Roese (2003) linked regulatory focus to temporal perspective in a study of both prospective and retrospective judgments, their four studies found that a promotion focus tends to predominate in pursuing temporally distant goals. Specifically, the relative impact of a promotion (vs. prevention) focus seems to increase over temporal distance. When the goal is far in the future, individuals seem to be more attuned to acquisition and achievement. In contrast to prevention-framed messages, it is expected that both present- and future-oriented consumers will evaluate promotion-framed messages similarly.

H3b: When an ad is promotion-framed, present- and future-oriented consumers will report similar levels of persuasion and intentions for preventive behaviors.

Method

Design, Procedure and Sample

Study 2 was a 2 (regulatory focus) $\times$ 2 (time orientation) between-subjects experiment. The sample consisted of 137 undergraduate business

students enrolled at a major university who were given course credit for participating. Their mean age was 21, with a range of 19 to 28, and 43% were males. Cell sizes ranged from 32 to 40 (promotion frame/present orientation = 40, promotion frame/future orientation = 30, prevention frame/present orientation = 35 and prevention frame/future orientation = 32). The use of a student sample is consistent with much of the previous research on regulatory focus and future orientation (e.g., Avnet and Higgins 2006; Elliot et al. 2001; Lee and Aaker 2004; Lee, Aaker, and Gardner 2000; Theriault, Aaker, and Pennington 2008). This is an important segment of the population to study, given the susceptibility to behaviors that lead to overweight and obesity. Based on self-reported height and weight, 20% of Study 2 participants were classified as overweight and an additional 6% were obese (using body mass index [BMI] guidelines).

In a classroom setting, participants were informed that the purpose of the study was to test the effectiveness of a public service advertisement directed toward college students. Participants were randomly assigned to one of the two regulatory focus conditions and were given the experimental stimulus to view, which consisted of a mock public service ad that offered suggestions on how to manage body weight. The ad consisted of recommendations related to both eating behavior and physical activity. Regulatory focus was manipulated through differential framing of the recommended strategic means (i.e., eating behavior and exercise) to achieve the outcome (i.e., effectively manage body weight).[2] In the promotion-frame condition, the ad stressed eating healthy foods and boosting physical activity as means to achieve the goal. In contrast, the prevention-frame condition focused on avoiding unhealthy foods and reducing sedentary behaviors to achieve the goal. This is consistent with past studies that have manipulated regulatory focus (Aaker and Lee 2001; Lee and Aaker 2004; Pennington, Aaker, and Mogilner unpublished data). The manipulations that appeared in the ad text for this study are shown below.

2. To test the proposed regulatory focus manipulation for Study 2, a pilot study was carried out on sixty undergraduate business students. The ad stimuli for the pretest were similar to that used in Study 2, and the regulatory focus manipulation was identical to that used in Study 2. There was evidence from the pilot test that the regulatory focus manipulation worked as planned. Participants in the promotion-focus condition reported that the ad highlighted promotion-means (vs. prevention-means) (Ms = 6.55 vs. 3.63, $F = 56.87$, $p < .05$) and participants in the prevention-focus condition reported that the ad highlighted the prevention-means (vs. promotion-means) (Ms = 6.53 vs. 2.80, $F = 107.6$, $p < .05$).

Promotion Frame: Seek healthy foods and exercise to manage body weight

The *Dietary Guidelines for Americans* provides NEW science-based advice on body weight management. The Guidelines suggest that young adults should focus on consuming more healthy foods such as fruits, vegetables and whole grains while increasing physical activity and exercise.

Seek healthy foods. In terms of your eating behavior, you should focus on consuming healthy foods that increase metabolism. Eat Plenty of Fruits and Veggies: A diet loaded with fruits and vegetables can be an effective strategy for managing weight. Choose Whole-Grains: Choose whole grain varieties of cereal and muffins over "refined" grains such as white bread.

Seek exercise. Focus on increasing physical activity and exercise to burn calories. Exercise Daily: Through 30 to 60 minutes of vigorous exercise on most days of the week, you can burn calories and boost metabolism. Walk to Class/Take the Stairs: An important aspect of getting in shape is to build physical activity into your daily routine.

Prevention Frame: Avoid unhealthy foods and inactivity to manage body weight

The *Dietary Guidelines for Americans* provides NEW science-based advice on body weight management. The Guidelines suggest that young adults should focus on avoiding foods containing saturated fats and added sugar while reducing the amount of sedentary (inactive) time during the day.

Avoid unhealthy foods. In terms of your eating behavior, you should focus on reducing caloric and fat intake. Avoid Foods High in Calories and Fat: Avoid foods containing saturated fats such as fatty red meats, butter, whole milk, cheese and ice cream. Avoid Added Sugars and Caloric Sweeteners: One 20 oz. soda contains more added sugar than is recommended for an entire day.

Avoid inactivity. Focus on reducing the amount of time you are inactive during the day. Limit Sedentary Behaviors: If your school and/or work schedule forces you to be desk-bound, try to use your free time to get moving. Avoid Being a "Couch Potato": Avoid the amount of time that you spend sitting down each day—reduce activities such as watching television.

A statement at the bottom of the ad reported that "This message is brought to you by the National Council on Nutrition and Exercise" to increase the credibility of the ad. After being exposed to the mock public service ad, participants were asked to respond to the dependent measures. At the end of the survey, participants completed the 12-item CFC scale, along with demographic and manipulation check measures.

Measures

Manipulation Check and Covariate

Although the regulatory focus manipulation for Study 2 was pretested, a manipulation check adapted from Lee and Aaker (2004) was used. Two promotion items and two prevention items were used to form an index to ensure that the regulatory focus manipulation worked as expected. The measure consisted of four 7-point items anchored by "strongly disagree/strongly agree." Participants reported the degree to which the ad highlighted the following issues: "eating healthy foods such as fruits and vegetables," "avoiding unhealthy foods such as fat and sugars" (reverse scored), "increasing physical activity through exercise" and "avoiding inactivity like watching TV" (reverse scored) ($\alpha = .78$). The prevention items were reverse coded so that higher scores on this index indicated a promotion orientation and lower scores indicated a prevention orientation.

Because the public service ad dealt with managing body weight and made lifestyle recommendations for eating and exercising, participants were expected to react differently to the ad depending on how they had managed their body weight in the past. Thus, in the demographics section of the questionnaire, participants were asked to report their current height and body weight, which were then used to calculate BMI, a covariate in the analysis.[3]

Time Orientation

The reliability estimate for the CFC scale completed by the participants was acceptable ($\alpha = .85$), and a median split was performed to represent present- vs. future-oriented participants (e.g., Boninger, Gleicher, and Strathman 1994; Joireman, Sprott, and Spangenberg 2005).

3. Although BMI was used as a covariate in this analysis to represent how participants have managed body weight in the past, caution should be used when interpreting these results. Numerous studies have demonstrated that BMI can be a poor predictor of body fat (e.g., Ode et al. 2007; Thomas et al. 1998).

Dependent Variables

Persuasiveness of the advertisement was measured using the same 3-item scale as in Study 1 (Aaker and Lee 2001; $\alpha = .92$). General intentions to follow the recommendations offered by the ad were measured by asking participants, "How likely are you to follow the advice given in the advertisement?" Participants responded to this question across three items anchored by "definitely will not/definitely will," "no chance/certain to happen" and "not at all likely/very likely" (Chandran and Menon 2004; $\alpha = .96$).

Because the stimulus offered recommendations for both eating behavior and physical activity, each framed in promotion and prevention terms, there was interest in measuring persuasion and behavioral intentions related to just the *diet* recommendations and just the *exercise* recommendations. This would allow for the use of a repeated measures analysis to get a feel for consumers' relative preferences and intentions to engage in diet and exercise behaviors based on the promotion and prevention framing of the recommendations. Thus, the same measures of persuasion and behavioral intentions as described above were asked later in the survey; however, participants were asked to consider *only* the diet-related recommendations and *only* the exercise-related recommendations when answering the questions. The reliability estimates for these four measures (persuasion and intentions for eating; persuasion and intentions for exercise) were acceptable ($\alpha = .93 - .98$). The questions specifically related to eating and exercise behavior were counterbalanced so that half of the participants responded to the eating behavior questions first and half to the exercise questions first.

Study 2 Results

Manipulation Check and Covariate

An independent samples t-test was run on the regulatory focus index using the two levels of manipulation. Results showed that the promotion-framed message resulted in higher levels of promotion orientation ($M = 6.31$) than the prevention frame ($M = 3.63, t = 11.18, p < .01$) and the prevention-framed message resulted in higher levels of prevention orientation ($M = 6.02$) than the promotion frame ($M = 4.58, t = 9.70, p < .01$). As shown in Table 1, the covariate used in the analysis (BMI) had significant effects on the dependent variables (Fs = 4.36 and 9.38, ps $< .05$).

Results

Similar to Study 1, Study 2 predictions were tested using multivariate analysis of covariance and follow-up univariate tests and contrasts. A

summary of Study 2 results is shown in the bottom portion of Table 1. Multivariate effects were significant for both regulatory focus (Wilks' $\lambda = 0.89, F = 3.85, p < .05$) and time orientation (Wilks' $\lambda = 0.93, F = 2.52, p < .05$) but were not significant for the interaction (Wilks' $\lambda = 0.94, F = 2.20, p = .07$). Univariate effects are discussed below.

Findings did not indicate a significant regulatory focus by time orientation interaction for either dependent variable. Although the omnibus univariate F was not statistically significant, support for H3 can be seen from the results of cell contrasts.[4] Results show that there was no difference in present- and future-oriented consumers' reported intentions when the message was promotion framed (Ms $= 4.75$ and $4.82, t = 1.09$, ns). However, when the message was prevention-framed, present-oriented consumers reported significantly lower intentions ($M = 3.96$) than future-oriented consumers ($M = 4.74, t = 2.68, p < .01$). The pattern of results supports H3a for intentions but not for the persuasion variable. H3b was supported. A plot of these results is shown in Figure 2.

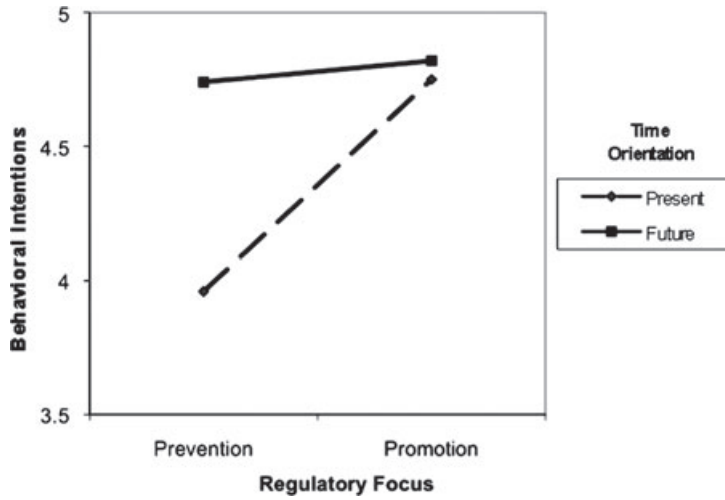
In addition, results show a univariate regulatory focus main effect for behavioral intentions ($F = 6.56, p < .01$). Overall, participants reported higher intentions to follow the general recommendations of the ad when the message was promotion-framed vs. prevention-framed. The main effect of regulatory focus on persuasion was not significant. Results also showed univariate time orientation main effects for intentions ($F = 8.18, p < .01$) but not persuasion ($F = 2.07, p = .08$). Compared with present-oriented participants, future-oriented participants reported higher behavioral intentions.

Additional Analysis and Results

The purpose of the additional analysis was to examine persuasion and intentions to engage in diet and exercise behaviors based on the promotion and prevention framing of the recommendations in the ad stimuli. Recall that participants were asked to report how persuasive the "diet-related" information in the ad was and how persuasive

4. A number of articles and methods' books support the procedure of carrying out planned comparisons directly without the F-test if theoretically motivated, priori predictions call for such tests (Rutherford 2001; Sternthal and Tybout 2001). For example, Keppel (1991) notes that "comparisons can be conducted directly on a set of data without reference to the significance or nonsignificance of the omnibus F-test." Also, Kirk (1982) suggests that "it is not necessary to perform an overall test of significance prior to testing planned orthogonal comparisons." Given that our hypotheses call for cell comparisons (rather than an overall test of main effects and interactions), contrasts are appropriate even though the overall F-test failed to reach significance.

FIGURE 2
Study 2: Regulatory Focus × Time Orientation Interaction

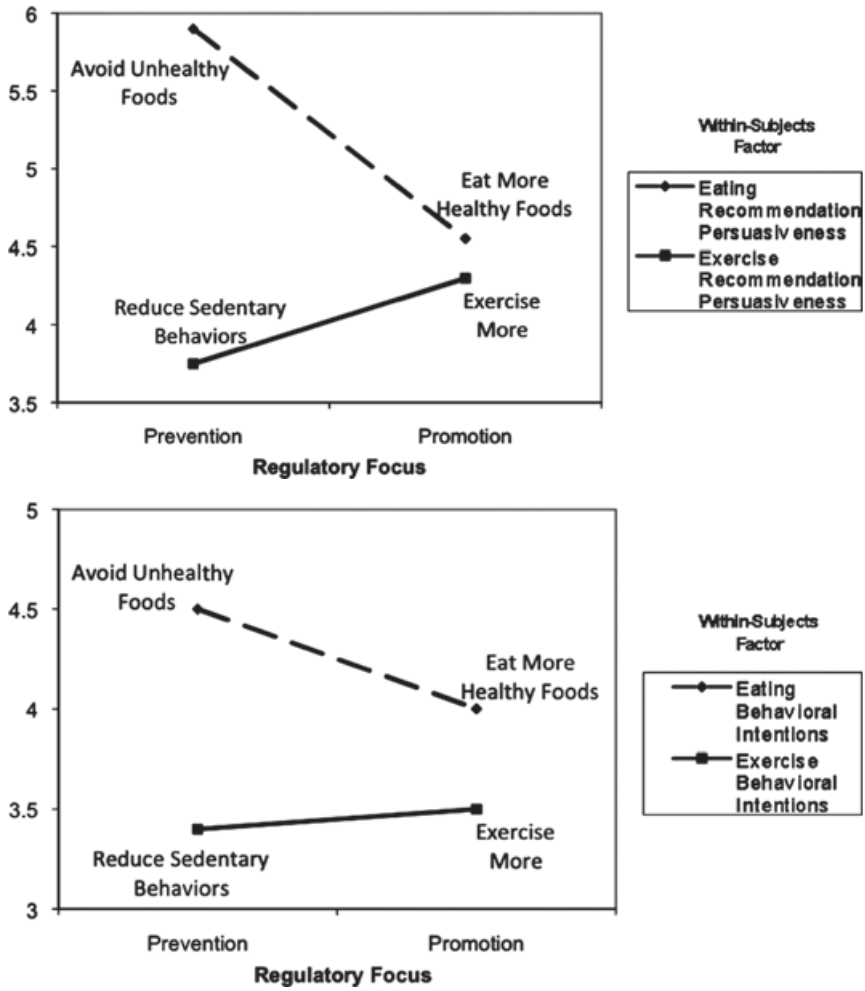


the "exercise-related" information in the ad was. They were also asked to report their specific intentions to follow the "diet-related" recommendations and how likely they were to follow the specific "exercise-related" recommendations.

The results of two repeated measures ANOVAs run with regulatory focus as a between-subjects factor showed a main effect for the repeated measures factor (persuasion) ($F = 50.38, p < .01$) and an interaction between the factor and regulatory focus ($F = 19.71, p < .01$). As shown in Figure 3, the pattern of results suggests that participants generally found the eating-related recommendations more persuasive than the exercise-related recommendations. The interaction suggests that the prevention-framed message to "avoid unhealthy foods" was the most persuasive, whereas the prevention-framed message to "reduce sedentary behaviors" was the least persuasive. Similar results were found for participants' intentions to follow the specific recommendations offered by the ad. Results of the mixed ANOVA show a main effect for the repeated measures factor (intentions) ($F = 4.95, p < .05$) and an interaction between the repeated measures factor and the regulatory focus manipulation ($F = 2.78, p < .05$). Participants seemed much more willing to try to "avoid unhealthy foods" than to "seek healthy foods" or try either of the two exercise recommendations.

These findings suggest that in this particular context, young adult consumers seemed more responsive and willing to avoid unhealthy foods

FIGURE 3
Study 2: Repeated Measures Analysis Interactions



(such as cut back on fat and added sugar) than eating healthier foods (such as fruits, vegetables and whole grains). For both persuasion and behavioral intentions, consumers seemed more open to the recommendations related to changing eating (vs. exercise) behaviors.

DISCUSSION

Given the media attention to the obesity epidemic in the United States today, people may be more conscious about the food and

exercise decisions they make (Department of Health and Human Services 2010). However, getting consumers to opt for decisions that have beneficial long-term outcomes in the face of immediate temptations remains a challenge. Considering that being overweight and inactive is strongly linked to the top three causes of death for Americans, a better understanding of how to persuade consumers to make better decisions that take into account future health outcomes would clearly be beneficial to society (CDC 2010).

Findings from the two studies presented here offer evidence for message framing techniques that may be particularly effective at encouraging consumers to take into account potential long-term negative health outcomes of their behaviors. Study 1 demonstrates that framing a long-term risk in more proximal terms can enhance the persuasiveness of the message and intentions to engage in preventive behaviors for present-oriented consumers. Study 2 findings suggest that framing the message in promotion terms (vs. prevention terms) can have a positive impact on present-oriented consumers' behavioral intentions. Across the two studies, a key contribution is the consistent finding that framing effects in this eating and exercise context can have varying levels of effectiveness based on differences in individuals' time orientation (i.e., low vs. high CFC). Framing a persuasive health message in proximal terms (Study 1) or promotion terms (Study 2) can have a positive impact on consumers who have difficult considering the future consequences of their behaviors without adversely affecting consumers who do typically take into account the future consequences of their behaviors.

Contributions to Practice

Considering the half a billion dollars spent yearly by the US Department of Agriculture (USDA) on nutrition education, these research findings have important implications for the design of health communication messages and suggest that policymakers should consider the temporal frame and regulatory focus of persuasive messages as they develop public service advertisements (USDA 2005). Findings from Study 1 suggest that temporal framing may be a persuasion technique that can help encourage consumers to give greater consideration to the long-term consequences of their immediate decisions. Findings from this study in the important domain of nutrition are highly consistent with previous studies which suggest that framing messages in proximal terms can influence consumer attitudes toward activities that have long-term consequences

such as offshore oil drilling (Strathman et al. 1994) and cell phone use (Chandran and Menon 2004).

Study 2 demonstrated the importance of regulatory focus. There are clearly several different strategic means to achieve the goal of good health. One is exercise; another is eating right. Within these two major categories lie several more specific recommendations that can be framed in a number of different ways. Considering the many different strategic means to achieve good health, and the various ways to frame these means, it is important to understand which types of messages are most effective. Study 2 uncovers findings that may help better understand when promotion- vs. prevention-framed health messages work best. One particularly interesting finding was that when the message was promotion-framed, both present- and future-oriented consumers reported similar intentions. However, when the message was prevention-framed, present-oriented consumers reported significantly lower intentions. This finding could suggest that if in doubt on how to frame a message for young adults about healthy eating, then the best option may be to focus on promotion frame as the advertiser will not impede message evaluation for either group. Conversely, opting for a prevention frame could result in present-oriented young adults not engaging with the message. Because this research examined only one specific segment of the population (undergraduate students), future research is necessary to understand if these findings can be generalized to other population segments.

Findings from this research related to the construct of CFC are important for designers of public health messages. Results suggest that consumers' temporal orientation can have a powerful impact on their health risk perceptions and behaviors, which is consistent with past research examining individual differences in temporal orientation (Howlett, Kees, and Kemp 2008; Strathman et al. 1994; Zimbardo and Boyd 1999). It is important for creators of public health campaigns to recognize this and develop messages that help consumers consider longer term implications of their behaviors. For instance, if public health officials recognize that there is a sizable portion of young adults who are prone to discount future health risks, they can create messaging strategies that focus on emphasizing the temporal proximity of longer term risks. Study 1 findings suggest that this type of messaging can be effective at increasing persuasion and behavioral intentions for the present-oriented consumers without influencing those consumers who are already more future oriented. An interesting area of future research would be to examine other personality correlates of time orientation to further define segments of consumers who are most likely to discount

important, temporally distant health risks. Future research should also examine whether present-oriented individuals who struggle with weight management have different behavioral intentions in terms of prevention or promotion orientated messages than their counterparts who do not struggle with weight management.

Contributions to Theory

The first and perhaps most significant theoretical contribution of this research is the finding that individual differences in time orientation can influence message evaluations and behavioral intentions in the consumer behavior domain (e.g., Dorr, Krueckeberg, and Strathman 1999; Orbell, Perugini, and Rakow 2004; Strathman et al. 1994). Although the literature to date has treated CFC as a stable, non-malleable "personality" trait (Strathman et al. 1994), an interesting area for future research is whether consumers' time orientation can be manipulated. Clearly, this would be important for consumer welfare.

Relatively few studies have examined temporal framing effects and among those, it is unclear under what conditions temporal framing of messages can influence consumers (e.g., Chandran and Menon 2004; Orbell, Perugini, and Rakow 2004). Findings from Study 1 begin to uncover an important variable (time orientation) that may moderate the effectiveness of temporal framing in health communications. The seminal work done by Chandran and Menon (2004) on temporal framing in marketing communications addresses two important moderators: difficulty of preventive behaviors and outcome valance. Findings of Study 1 extend these authors' work by showing how time orientation can influence the effectiveness of temporal framing effects. An important and interesting finding from Study 2 is the relationship between regulatory focus and time orientation. Future-oriented consumers reported higher behavioral intentions than present-oriented consumers when the strategic means to reach the goal was prevention-framed. When the message was promotion-framed, both groups reported similar intentions. This pattern of findings extends previous studies related to the relationship between temporal distance and regulatory focus (e.g., Pennington and Roese 2003) and demonstrates that strategic means for obtaining a goal can be more or less appealing depending on temporal orientation. These contributions to theory are limited to the extent that effects were demonstrated for a narrow group of young consumers.

In summary, the mechanisms of temporal framing and regulatory focus are important to examine in the realm of public health, especially given

the challenges faced by policymakers to increase the effectiveness of their communication campaigns. These findings can potentially help inform creators of public service campaigns on how to effectively persuade young Americans to make better health and lifestyle decisions. Persuasion techniques that motivate individuals to consider health appeals more carefully—and make lifestyle changes based on those appeals—merit greater understanding. These mechanisms may not directly translate to improvements in public health but perhaps may indirectly improve health outcomes through increasing the efficacy of health communications.

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